TM 11-7021-210-13&P

ADVANCE COPY

TECHNICAL MANUAL

OPERATOR'S, UNIT, AND INTERMEDIATE DIRECT SUPPORT MAINTENANCE MANUAL INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST

FOR

MICROPROCESSOR GROUP CY-8537/G (BAR CODE READER)

5815-01-262-9956

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HEADQUARTERS, DEPARTMENT OF THE ARMY

SEPT 1988

5 SAFETY STEPS TO FOLLOW IF SOMEONE IS THE VICTIM OF ELECTRICAL SHOCK

1. DO NOT TRY TO PULL OR GRAB THE INDIVIDUAL

2. IF POSSIBLE, TURN OFF THE ELECTRICAL POWER

3. IF YOU CANNOT TURN OFF THE ELECTRICAL POWER, PULL, PUSH, OR LIFT THE PERSON TO SAFETY USING A WOODEN POLE OR A ROPE OR SOME OTHER INSULATING MATERIAL

4. SEND FOR HELP AS SOON AS POSSIBLE

5. AFTER THE INJURED PERSON IS FREE OF CONTACT WITH THE SOURCE OF ELECTRICAL SHOCK, MOVE THE PERSON A SHORT DISTANCE AWAY AND IMMEDIATELY START ARTIFICIAL RESUSCITATION

SAFETY SUMMARY

The following are recommended safety precautions that personnel must understand and apply during many phases of operation and maintenance.

KEEP AWAY FROM LIVE CIRCUITS

Operating personnel must at all times observe all safety regulations.

Be careful not to touch high-voltage connections or 110/240 volt ac input connections when installing or operating this equipment.

USE CARE IN USING/STORING LITHIUM BATTERIES

If the battery compartment becomes hot to the touch, if you hear a hissing sound (i.e., battery venting), or if you smell irritating sulfur dioxide gas, IMMEDIATELY turn off the equipment. Remove the equipment to a well-ventilated area or leave the area.

Do not use a Halon type fire extinguisher on a lithium battery fire.

In the event of a fire near a lithium battery(ies), rapid cooling of the battery(ies) is important. Use a carbon dioxide (CO_2) extinguisher. Control of the equipment fire, and cooling, may prevent the battery from venting and potentially exposing lithium metal. In the event that lithium metal becomes involved in fire, the use of a graphite-based Class D fire extinguisher is recommended, such as Lith-X or MET-L-X.

Instructions:

1. Allow the equipment to cool at least 1 hour.

2. Remove and replace battery after the equipment has cooled to the touch.

3. If there is a safety incident, or if you believe a safety hazard exists, notify your local Safety Office/Officer, file a Quality Deficiency Report, SF Form 368, and notify the CECOM Safety Office, Ft. Monmouth, NJ at AUTOVON 995-3112, Commercial (201) 544-3112.

Do not store lithium batteries with other hazardous materials. Keep them away from open flame or heat.

Do not store batteries in unused equipment for more than 30 days.

DO NOT PERFORM MAINTENANCE ALONE

Do not work on electronic equipment unless there is another person nearby who is familiar with the operation and hazards of the equipment.

RESUSCITATION

Personnel working with electronic equipment should be familiar with resuscitation techniques and first aid. For artificial respiration, refer to FM 21-11.

To look along the axis of a laser beam without protective glasses is extremely dangerous. Align the laser so that personnel are unlikely to inadvertently look along the axis of its beam.

Laser firing systems may store a charge. Take care to prevent accidental pulsing of the laser and to avoid electric shock. Systems should be so designed as to include a "fail-safe" means of avoiding this hazard.

Reflections from the laser beam are extremely dangerous. It is essential that all reflective material be removed from its path.

TECHNICAL MANUAL
NO. TM 11-7021-210-13&P

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC

Operator's, Unit, and Intermediate Direct Support Maintenance Manual Including Repair Parts and Special Tools List for Microprocessor Group CY-8537/G

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 direct to: Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-ME-MP, Fort Monmouth, New Jersey 07703-5007. In either case a reply will be furnished direct to you.

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CHAPTER 0
INTRODUCTION

0-1 SCOPE. This manual provides instructions for the operation and maintenance of the Logistics Applications of Automated Marking and Reading Symbols - Tactical (LOGMARS(T)). This manual deals specifically with the Microprocessor Group CY-8537/G.

0-2 CONSOLIDATED INDEX OF ARMY PUBLICATIONS AND BLANK FORMS. Refer to the latest issue of DA Pam 25-30 to determine whether there are new additions, changes or additional publications pertaining to the equipment.

0-3 MAINTENANCE FORMS, RECORDS, AND REPORTS. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA Pam 738-750, as contained in Maintenance Management Update.

0-4 REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR). If your equipment needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about the design. Put it on an SF 368 (Quality Deficiency Report). Mail it to Commander, US Army Communications-Electronics Command and Fort Monmouth, ATTN: AMSEL-PA-MA-D, Fort Monmouth, NJ 07703-5023. We'll send you a reply.

0-5 ADMINISTRATIVE STORAGE. Administrative storage of equipment issued to and used by Army activities will have preventive maintenance performed in accordance with the Preventive Maintenance Checks and Services (PMCS) charts before storing. When removing the equipment from administrative storage the PMCS should be performed to ensure operational readiness. Disassembly and repacking of equipment for shipment or limited storage are covered in paragraphs 3-6 and 4-4.

0-6 DESTRUCTION OF ARMY ELECTRONICS MATERIEL. Destruction of Army electronics materiel to prevent enemy use will be in accordance with TM 750-244-2.

0-7 COMMON NAMES. Throughout the manual, equipment names have been shortened or abbreviated as follows:

Microprocessor CP-1886/G	bar code reader (BCR)
Laser Scanner	laser scanner
Contact Scanner	contact scanner
Interface Bar Code Reader Cable	RS232 connector cable
Null Modem Interface Cable	null modem interface cable
Communications Modem MD-1245/G	modem
Bar Code Reader Transit Case CY-8537/G	BCR transit case
Bar Code Printer TT-831/G	printer
Bar Code Reader Diagnostic Plug	diagnostic plug
Programmable Read Only Memory (PROM)	Custom Application Module (CAM), Electronically Programmable Read Only Memory (EPROM)

0-8 GLOSSARY OF TERMS. A list of abbreviations and terms can be found in the Glossary at the back of this manual.

CHAPTER 1
GENERAL INFORMATION

1-1 PURPOSE AND FUNCTION. LOGMARS(T) is an automated information collection system. Inventory information is collected by reading bar code labels affixed to such items as supply cartons, tools, and equipment. These bar code labels are computer generated and code the description of items for inventory purposes. The LOGMARS(T) decodes the inventory information, stores it, and transmits it via several pieces of equipment, which are addressed in Chapter 2. The decoding equipment consists of a bar code reader (BCR), a laser scanner, and a contact scanner. See figures 1-1 through 1-3.

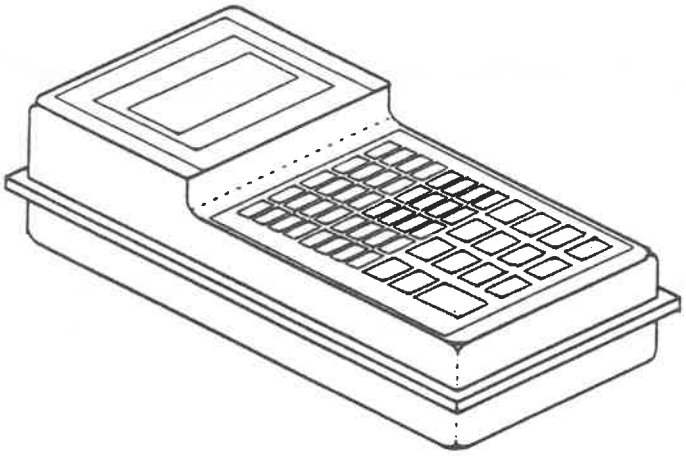


Figure 1-1. Bar Code Reader

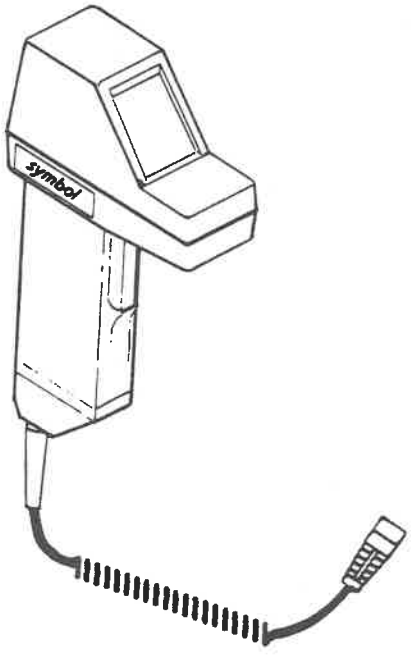


Figure 1-2. Laser Scanner

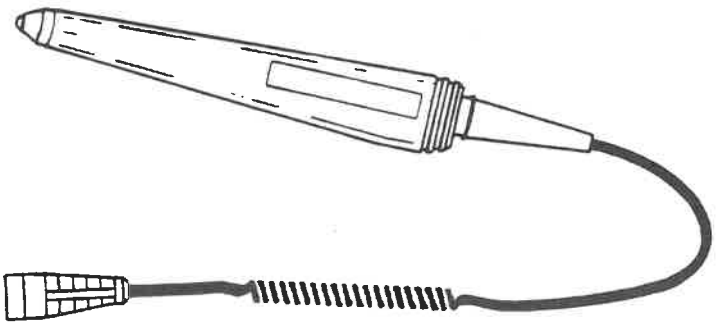


Figure 1-3. Contact Scanner

1-2 LIST OF ITEMS. Each BCR transit case will contain the following items as shown in Appendix F RPSTL of this manual.

1 Bar Code Reader (BCR)
1 Laser Scanner
1 Contact Scanner
1 Bar Code Reader Holster
1 Laser Scanner Holster
1 Holster Strap
1 Holster Belt
1 Interface Bar Code Reader Cable (RS232 connector cable)
1 Bar Code Reader Diagnostic Plug
1 Null Modem Interface Cable
20 AA Alkaline Batteries
1 Gender Changer
2 Lithium Batteries
1 TM 11-7021-210-13&P
1 Packing List

1-3 DIMENSIONS AND WEIGHT.

a. Bar Code Reader. The BCR measures 8.125 inches (20.637 cm) high by 4.125 inches (10.477 cm) wide by 2.375 inches (6.032 cm) deep. It weighs 30 ounces without batteries and 40 ounces with batteries.

b. Laser Scanner. The laser scanner measures 7.15 inches (18.161 cm) high by 1.70 inches (4.318 cm) wide by 4.20 inches (10.668 cm) deep. It weighs 8 ounces.

c. Contact Scanner. The contact scanner measures 5.3 inches (13.462 cm) high by 0.9 inches (2.286 cm) wide by 0.9 inches (2.286 cm) deep. It weighs 5 ounces.

1-4 POWER REQUIREMENTS. The BCR uses 10 AA alkaline/nickel cadmium batteries as a primary power source. A lithium coin cell battery is provided to retain the memory. It will provide approximately 300 hours of power so that the BCR memory will not be lost while the primary batteries are being recharged/replaced. The laser scanner and contact scanner do not contain power sources. They receive power from the BCR.

1-5 ENVIRONMENTAL REQUIREMENTS. The BCR transit case and its contents should be protected from extreme temperature, moisture, and abuse. Care should be taken during transporting, loading, and unloading to protect against shock and equipment damage.

a. Bar Code Reader. The BCR can be used in harsh outdoor environments, but battery life is shortened at temperature extremes. Its operating temperature range is 0 °F to 158 °F (-18 °C to 70 °C). The waterproof casing of the BCR protects it from rain, sand, and dust.

b. Laser Scanner. The laser scanner has an operating temperature range of -0 °F to 110 °F (-18 °C to 43 °C). It should be kept away from moisture and abrasive particles such as sand and dirt, which could damage the photo-sensor windows.

c. Contact Scanner. The contact scanner has an operating temperature range of -4 °F to 149 °F (-20 °C to 65 °C). It should be kept away from moisture and abrasive particles such as sand and dirt, which can damage the tip of the wand.

1-6 STORAGE. The BCR, scanners, and accessories should be stored in the BCR transit case. The case was designed to protect the equipment from the environment.

1-7 TEST EQUIPMENT. A BCR diagnostic plug is provided to test the BCR and interface BCR cable. (Refer to Chapter 3.)

1-8 WARRANTY INFORMATION. The BCR, laser scanner, and contact scanner are warranted by SYSCON Corporation for 1 year from the date of acceptance by the Government at destination. Tampering with internal parts of the LOGMARS(T) system could result in loss of warranty.

1-9 STANDARD ARMY MANAGEMENT INFORMATION SYSTEMS (STAMIS). STAMIS refers to the application software developed for Army use. Some instructions for operating LOGMARS(T) equipment will vary, depending on the specific STAMIS loaded to your BCR. When operating instructions are software dependent, the operator will be referred to the STAMIS manual for specific instructions.

1-10 LOADING A STAMIS TO THE BCR. Before the BCR can be used for collecting data, an application program (STAMIS) must be loaded. This can be accomplished by inserting a CAM into the BCR (refer to paragraph 2-5c) or by downloading the program from the host computer (refer to paragraph 2-7b(9)). Refer to STAMIS manual for specific instructions.

CHAPTER 2
OPERATING INSTRUCTIONS

2-1 UNPACKING AND INSPECTION.

a. Unpacking. Carefully unpack the BCR transit case. Be sure all of the following items are included:

1 Bar Code Reader (BCR)
1 Laser Scanner
1 Contact Scanner
1 Bar Code Reader Holster
1 Laser Scanner Holster
1 Holster Strap
1 Holster Belt
1 Interface Bar Code Reader Cable (RS232 connector cable)
1 Bar Code Reader Diagnostic Plug
1 Null Modem Interface Cable
20 AA Alkaline Batteries
2 Lithium Batteries
1 Gender Changer
1 TM 11-7021-210-13&P
1 Packing List

b. Inspection. Examine each item for obvious damage. Check cables for bent or broken pins and frayed coverings. Make sure the BCR, laser scanner, and contact scanner have not been exposed to moisture or abrasive materials. If damaged equipment is discovered, repack the transit case and return to next higher level of maintenance.

NOTE

The BCR transit case is used to store the BCR, scanners, and accessories when they are not in use. It is also used to transport the equipment and to return it for maintenance. Under no circumstances should the transit case be thrown away.

2-2 CONTROLS AND INDICATORS.

a. BCR. The arrangement of the controls and indicators on the BCR is shown in figure 2-1. Table 2-1 provides an explanation/description of each.

b. Laser Scanner. The arrangement of controls and indicators on the laser scanner is shown in figure 2-2. Table 2-2 provides an explanation/description of each.

c. Contact Scanner. The contact scanner has no controls or indicators. When properly connected, the scanner receives power when the BCR is turned on. The only visible indicator that the equipment is working is a tiny red beam at the tip of the scanner.

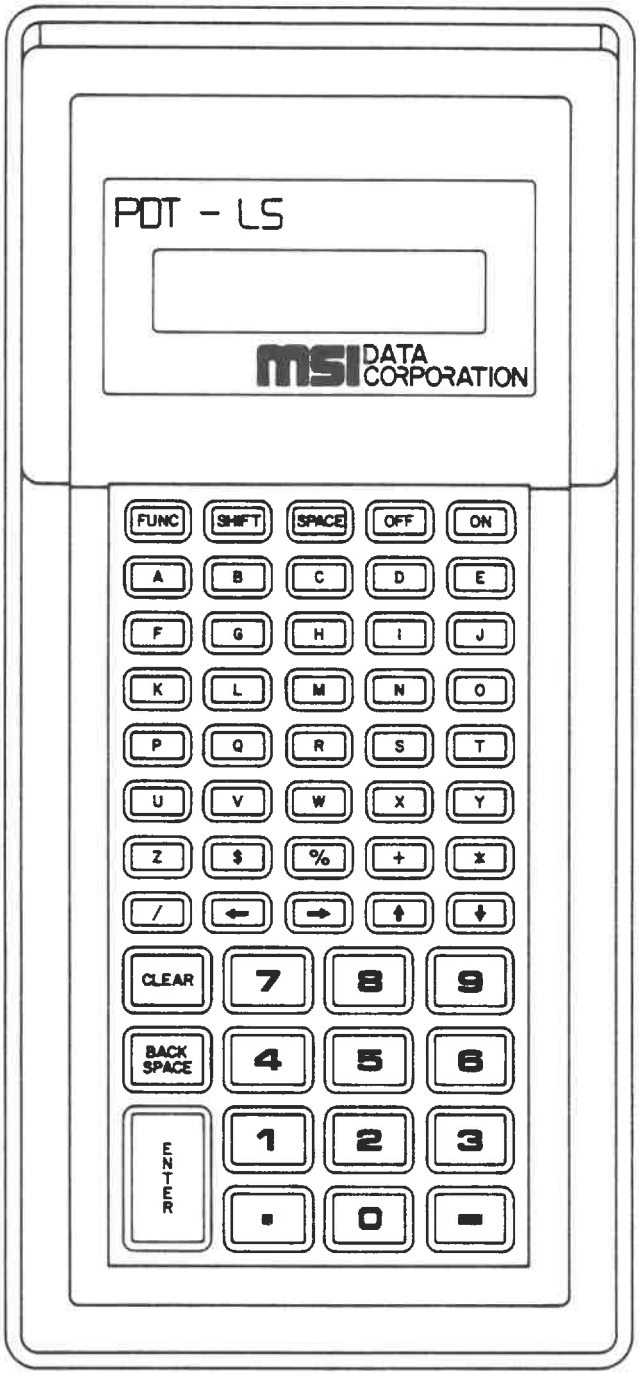


Figure 2-1. BCR Controls and Indicators

Table 2-1. BCR Controls and Indicators

Control/Indicator	Function/Description
LCD (Liquid Crystal Display)	Information read-out display. Can show 2 lines of characters or numbers, 16 characters per line,and/or letters.
FUNC (Function)	Used to shift from normal to special operations.
SHIFT	Key shifts between uppercase and lowercase keys.
SPACE	Enters a blank space.
OFF	Turns off BCR.
ON	Turns on BCR.
A through Z	Used to enter alphabetic characters.
$, %, +, *, and /	Used to enter these symbols.
←, →, ↑, and ↓	Review keys, which provide movement within application programs. Up and down arrow keys are used to scroll.
CLEAR	Clears the display of current entry.
BACKSPACE	Erases the display one character at a time.
ENTER	Enters data on display into memory.
0 through 9	Used to enter numeric characters.
. and –	Used to enter these characters.

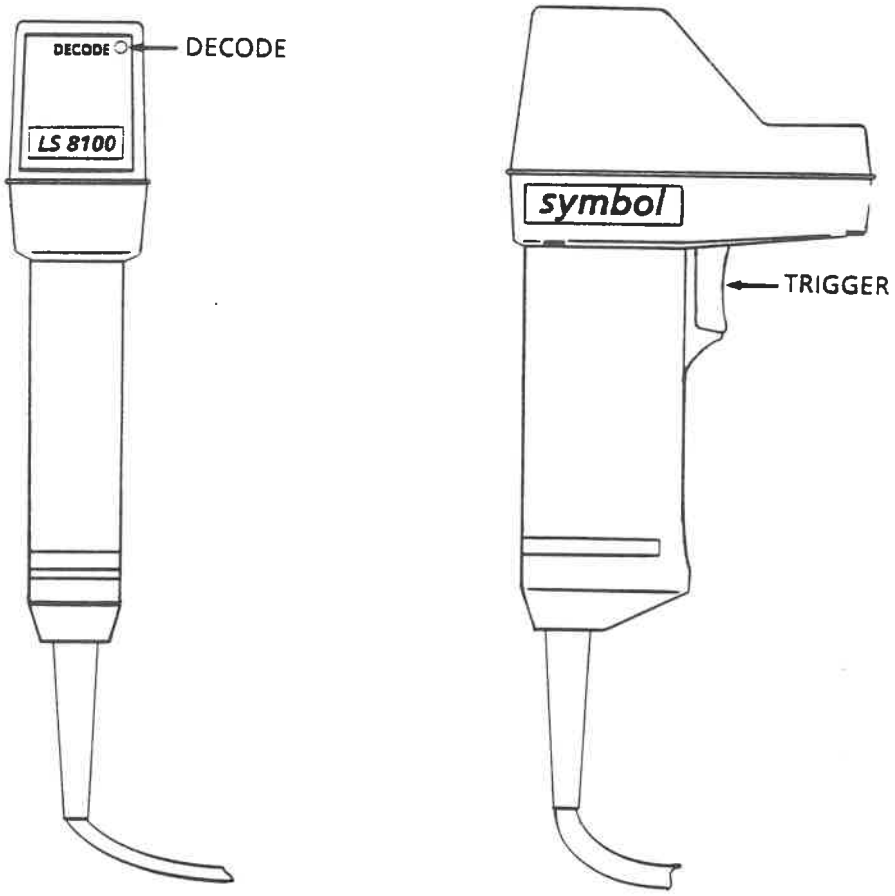


Figure 2-2. Laser Scanner Control and Indicators

Table 2-2. Laser Scanner Control and Indicators

Control/Indicator	Function/Description
Two-Position Trigger	First position aligns scanning beam. Second position completes scanning process.
DECODE	LED illuminates when a valid reading occurs.

2-3 GENERAL OPERATING PRECAUTIONS.

a. Before You Operate.

(1) Always keep the cautions and warnings in mind.

(2) Make sure power is off before making equipment connections.

(3) Inspect equipment following paragraph 2-1 b.

b. While You Operate.

(1) Always keep the cautions and warnings in mind.

(2) Observe equipment for signs of power failure or power shortage. Replace or recharge used batteries. (Only nickel cadmium batteries can be recharged. Do not recharge alkaline batteries.)

(3) Visually inspect equipment for defects or malfunctions.

c. After You Operate.

(1) Make sure power is off before disconnecting equipment.

(2) Visually inspect cables for fraying or worn spots. Check connections and pins to make sure they are not cracked, broken, or bent.

(3) Store equipment in the BCR transit case for protection.

d. If Your Equipment Fails To Operate. Report any deficiencies using proper forms. Refer to DA Pam 738-750.

2-4 OPERATION UNDER UNUSUAL CONDITIONS. The BCR, laser scanner, and contact scanner were designed for tactical use. They have several features to protect against damage during unusual conditions.

a. BCR.

(1) Waterproof Casing. The BCR is enclosed in a waterproof casing. This protects the equipment from moisture and debris during rainy, snowy, or windy conditions.

(2) LCD Display Lighting. The LCD display lighting is provided by electroluminescent lighting. It can be used in all ambient environments and is highly visible, even in bright sunlight.

(3) Memory Backup Battery. The BCR has been provided with a lithium coin cell so that the BCR memory will not be lost while the primary batteries are being recharged/replaced. This lithium coin cell can be used for approximately 300 hours.

(4) Temperature Extremes. The BCR can be used in harsh outdoor elements. Its operating temperature range is 0 °F to 158 °F (-18 °C to 70 °C).

b. Laser Scanner.

(1) Waterproof Casing. The laser scanner is enclosed in a waterproof casing. This protects the equipment from moisture and debris during rainy, snowy, or windy conditions.

(2) Ambient Light Immunity. The laser scanner is immune to direct exposure from sunlight and office-level lighting.

(3) Temperature Extremes. The laser scanner has an operating temperature range of 0 °F to 110 °F (-18 °C to 43 °C).

c. Contact Scanner.

(1) Waterproof Casing. The contact scanner is enclosed in a waterproof casing. This protects the equipment from moisture and debris during rainy, snowy, and windy conditions.

(2) Ambient Light Immunity. The contact scanner has excellent ambient light rejection. It is designed to work in high ambient light, such as outdoor or office-level lighting.

(3) Temperature Extremes. The contact scanner has an operating temperature of -4 °F to 149 °F (-20 ° C to 65 °C).

2-5 PREPARATION FOR USE. When you first receive the BCR you must install two parts: the primary power source and the memory backup power source. Install CAM if necessary. The primary power source, 10 AA alkaline/nickel-cadmium batteries, and the memory backup power source, a lithium coin cell battery, are provided in the BCR transit case. Installation of these three parts is described below.

a. AA Alkaline/Nickel-Cadmium Batteries. The AA alkaline/nickel-cadmium batteries supplied with your BCR provide operating power for the BCR, the laser scanner, and the contact scanner. They allow you to perform up to 100 keying hours and up to 4,000 bar code scans with the attached bar code scanner. To install the batteries, proceed as follows.

CAUTION

Ensure that the BCR is off before installing the batteries. Make sure that the BCR is disconnected from other equipment.

(1) Press OFF key on BCR.

(2) Remove BCR holster by pulling Velcro apart.

(3) Remove rear cover by unscrewing the two D-rings in a counterclockwise direction.

(4) Install each of the 10 batteries in direction indicated on inside of BCR. See figure 2-3.

b. Lithium Battery. The memory backup battery is a 3-volt lithium coin cell battery located in a battery holder next to the alkaline batteries. The BCR is initially shipped without a lithium battery installed, but two are packed in the BCR transit case. To install it, proceed as follows.

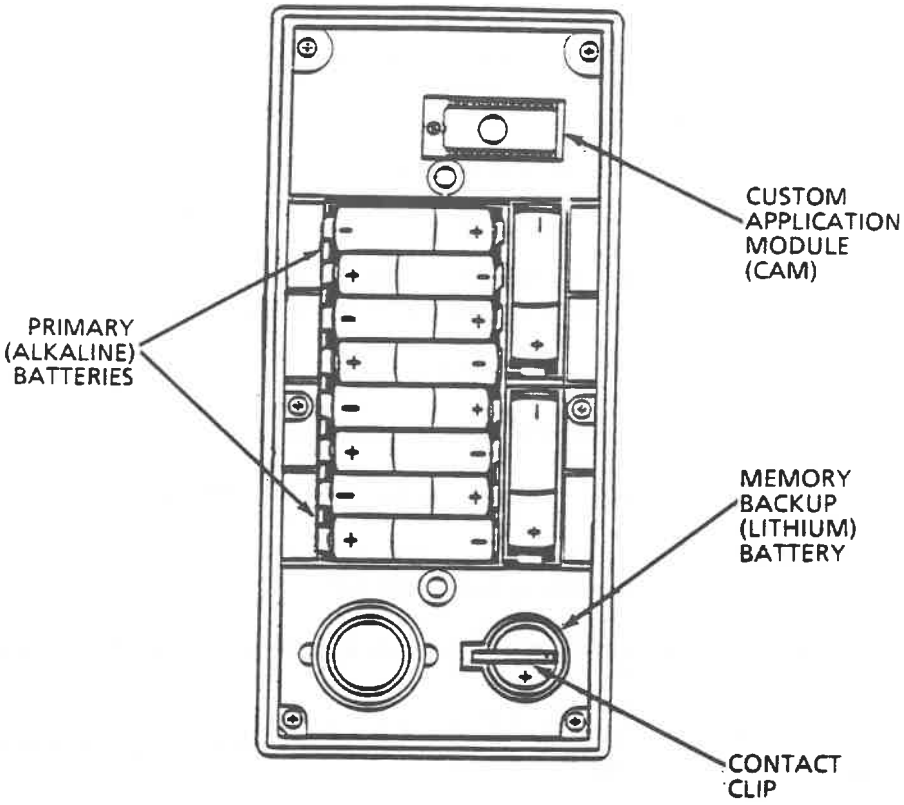


Figure 2-3. Battery Installation

WARNING

Do not store lithium batteries with other hazardous materials. Keep them away from open flame or heat.

CAUTION

Do not store batteries in unused equipment for more than 30 days.

Ensure that the BCR is off before installing the lithium battery. Make sure that the BCR is disconnected from other equipment.

(1) Remove lithium coin cell from its slot in BCR transit case.

(2) With your fingers, lift up contact clip on back of BCR just enough to insert battery. See figure 2-3 for clip.

(3) Hold new battery in position with negative (-) face down and positive (+) face up.

(4) At an angle, insert battery under holder's positive contact clip. When the battery is properly installed, the contact clip will snap closed.

c. *The CAM.* A CAM is a PROM that contains a specific application. Refer to STAMIS operating manual to determine if a CAM is required for your specific application. The BCR is initially shipped without a CAM installed. To install the CAM, proceed as follows.

CAUTION

Ensure that the BCR is off before installing the CAM. Make sure that the BCR is disconnected from other equipment.

NOTE

Before installing CAM, remove from CAM holder and socket.

(1) Look at diagram on inside of BCR. It shows how to insert the CAM correctly.

(2) Ensure that CAM socket connections are unlocked by turning locking screw approximately one quarter turn counterclockwise. Do not force screw. See figure 2-4.

(3) Holding CAM by handle, gently insert it into socket with notched end of CAM positioned toward locking screw. See figure 2-4.

(4) With CAM seated in socket, lock contacts by turning locking screw approximately one quarter turn clockwise. Do not try to force screw.

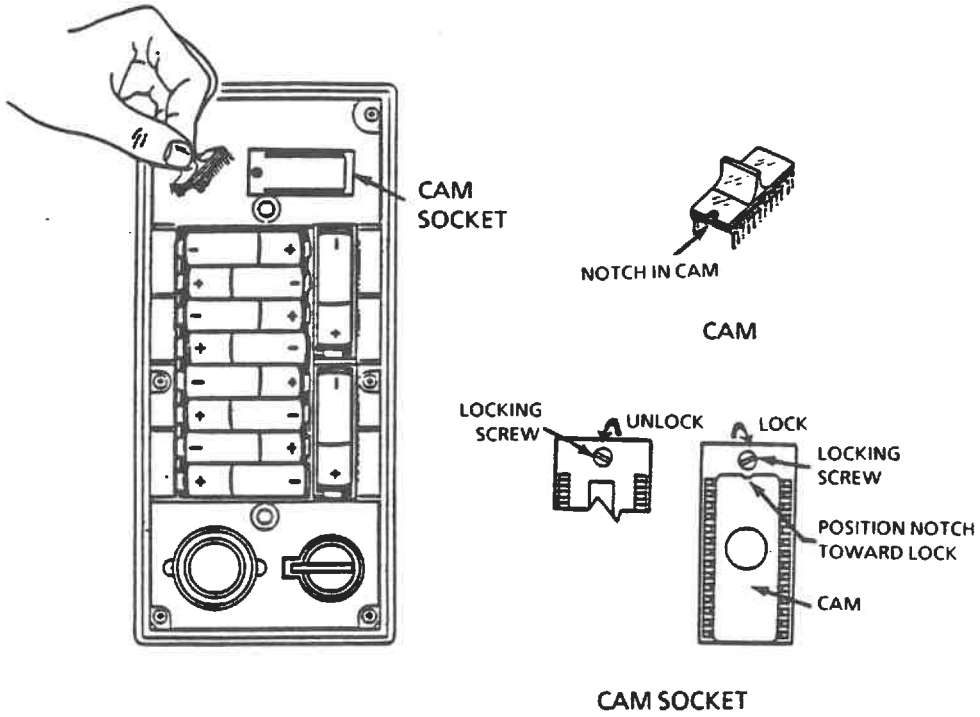


Figure 2-4. Inserting the CAM

(5) Replace rear cover, screwing the two D-rings in a clockwise direction until they are secure.

(6) Replace BCR holster on BCR by re-attaching Velcro.

2-6 CONNECTION PROCEDURES. For the BCR to receive or transmit inventory information, it must be connected properly to the other components of LOGMARS(T).

a. BCR to Laser Scanner.

WARNING

To look along the axis of a laser beam without protective glasses is extremely dangerous. Align the laser so that personnel are unlikely to inadvertently look along the axis of its beam.

Laser firing systems may store a charge. Take care to prevent accidental pulsing of the laser and to avoid electric shock.

Reflections from the laser beam are extremely dangerous. It is essential that all reflective material be removed from its path.

CAUTION

Be sure the BCR is off before making any connections.

NOTE

Some laser scanners will not emit light when the trigger is initially depressed. This often happens in cold environments and when the unit has not been used for an extended period of time. If this situation occurs, depress and hold the trigger for 2 seconds repeatedly until red laser light appears. Once the red laser light appears, the unit is ready for operation.

(1) Press BCR OFF key.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Do not connect the laser scanner to the RS232 connector port.

Do not force the laser scanner connector cable into the BCR scanner port. Connecting improperly can damage the connector pins.

(2) Remove rubber cap from BCR scanner port. Connect the laser scanner to the BCR scanner port by carefully fitting the connector pins into the appropriate holes. See figure 2-5.

CAUTION

Do not pull the laser scanner connector cable off the BCR port without squeezing the connector. Improper removal can damage the connector.

(3) To disconnect laser scanner from BCR, squeeze connector to loosen it at BCR port. Carefully pull to disconnect.

(4) Replace rubber cap over BCR scanner port.

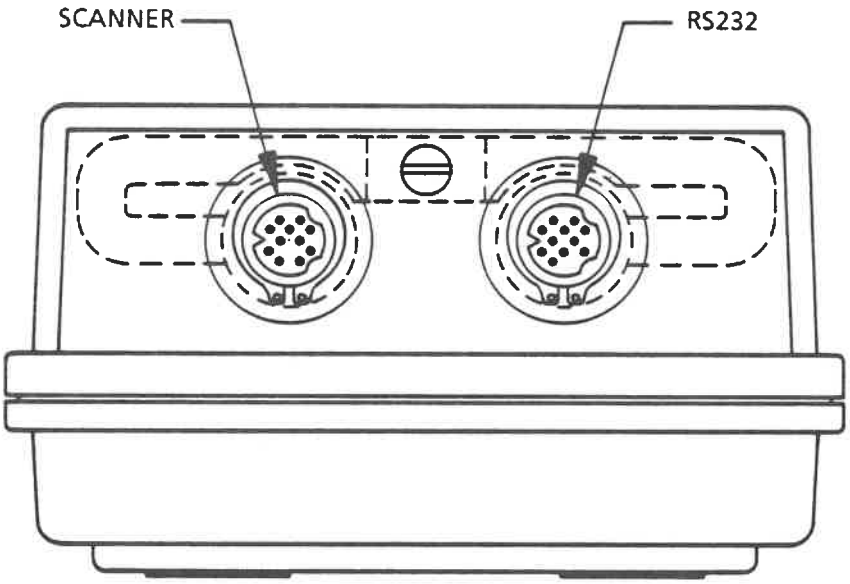


Figure 2-5. BCR Scanner and RS232 Connector Ports

b. BCR to Contact Scanner.

CAUTION

Be sure the BCR is off before making any connections.

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Do not connect the contact scanner to the RS232 connector port.

Do not force the contact scanner connector cable into the BCR scanner port. Connecting improperly can damage the connector pins.

(1) Press BCR OFF key.

(2) Remove rubber cap from BCR scanner port. Connect the contact scanner cable to the BCR scanner port by carefully fitting the connector pins into the appropriate holes. See figure 2-5.

CAUTION

Do not pull the contact scanner connector cable off the BCR scanner port without squeezing the connector. Improper removal can damage the connector.

(3) To disconnect contact scanner from BCR, squeeze connector to loosen it at BCR port. Carefully pull to disconnect.

(4) Replace rubber cap over BCR scanner port.

c. *BCR to BCR.*

CAUTION

Be sure that both BCR's are off before making any connections.

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Do not force the RS232 connector cable or the null modem interface cable into the BCR RS232 connector port. Connecting improperly can damage the connector pins.

(1) Press BCR OFF key.

(2) Remove rubber cap from BCR RS232 connector port. Connect an RS232 connector cable to each BCR RS232 connector port. See figure 2-5.

(3) Attach null modem interface cable to each RS232 connector cable, forming a connection between both BCR's.

CAUTION

Do not forcibly pull the RS232 connector cable from the null modem interface cable. Improper disconnection can damage the connector pins.

(4) To disconnect null modem interface cable from RS232 connector cable, carefully pull the two cables apart.

CAUTION

Do not pull the RS232 connector cable off the BCR RS232 connector port without squeezing the connector. Improper removal can damage the connector.

(5) To remove RS232 connector cable from BCR, squeeze connector at its base and pull carefully to disconnect from port.

(6) Replace rubber cap over BCR RS232 connector port.

d. BCR to Host Computer.

CAUTION

Be sure the BCR is off before making any connections.

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Do not force the RS232 connector cable or the null modem interface cable into the BCR RS232 connector port. Connecting improperly can damage the connector pins.

(1) Press BCR OFF key.

(2) Remove rubber cap from BCR RS232 connector port. Connect RS232 connector cable to BCR at RS232 connector port. See figure 2-5.

(3) Attach null modem interface cable to RS232 connector cable. The host computer operator will connect the other end of the null modem interface cable to the computer. See figure 2-6.

CAUTION

Do not forcibly pull the null modem interface cable from the host computer or RS232 connector cable. Improper disconnection can damage the connector pins.

(4) To disconnect null modem interface cable from host computer and RS232 connector cable, carefully pull cable from connectors. Do not forcibly pull cables apart.

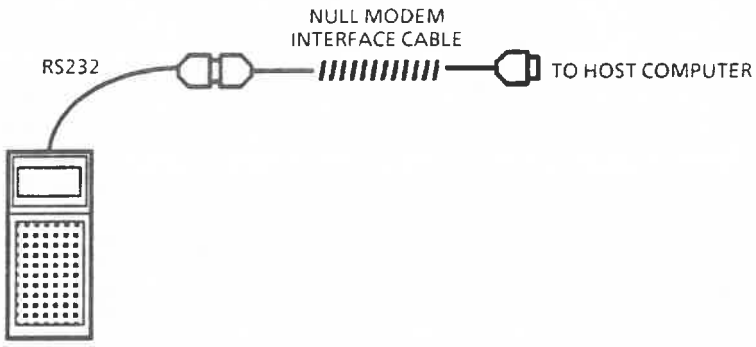


Figure 2-6. BCR to RS232 Connector Cable to Null Modem Interface Cable to Host Computer

CAUTION

Do not pull the RS232 connector cable off the BCR RS232 connector port without squeezing the connector. Improper removal can damage the connector.

(5) To disconnect RS232 connector cable from BCR, squeeze connector at BCR RS232 connector port and pull carefully.

(6) Replace rubber cap over BCR RS232 connector port.

e. *BCR to Host Computer via Modem.* (Refer to TM 11-7025-263-13&P.)

CAUTION

Be sure the BCR and the modem are off before making any connections.

(1) Press BCR OFF key.

(2) Place modem POWER ON/OFF switch in OFF position.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Do not force the RS232 connector cable or the null modem interface cable into the BCR RS232 connector port. Connecting improperly can damage the connector pins.

When using the interface modem cable, do not force the cable into either the RS232 connector cable or the modem. Connecting improperly can damage the connector pins.

(3) Remove rubber cap from BCR RS232 connector port. Connect RS232 connector cable to BCR RS232 connector port. See figure 2-5.

(4) Attach one end of interface modem cable to RS232 connector cable.

(5) Attach other end of interface modem cable to DTE port on modem. See figure 2-7.

(6) Tighten connecting screws by hand until secure. Do not overtighten.

(7) Disconnect telephone cable from wall jack.

(8) Connect telephone cable to TELSET jack on back panel of modem. See figure 2-8.

(9) Connect larger end of telephone signal cable (provided with modem) to TELCO jack on back panel of modem.

(10) Connect smaller end of signal cable to wall jack. See figure 2-9.

(11) To disconnect signal cable from wall jack and TELCO jack, squeeze connector. Carefully pull to disconnect.

(12) To disconnect telephone cable from TELSET jack, squeeze connector. Carefully pull to disconnect.

(13) Connect telephone cable to wall jack.

(14) By hand, loosen connecting screws securing interface modem cable to DTE port on modem and carefully pull cable from connector.

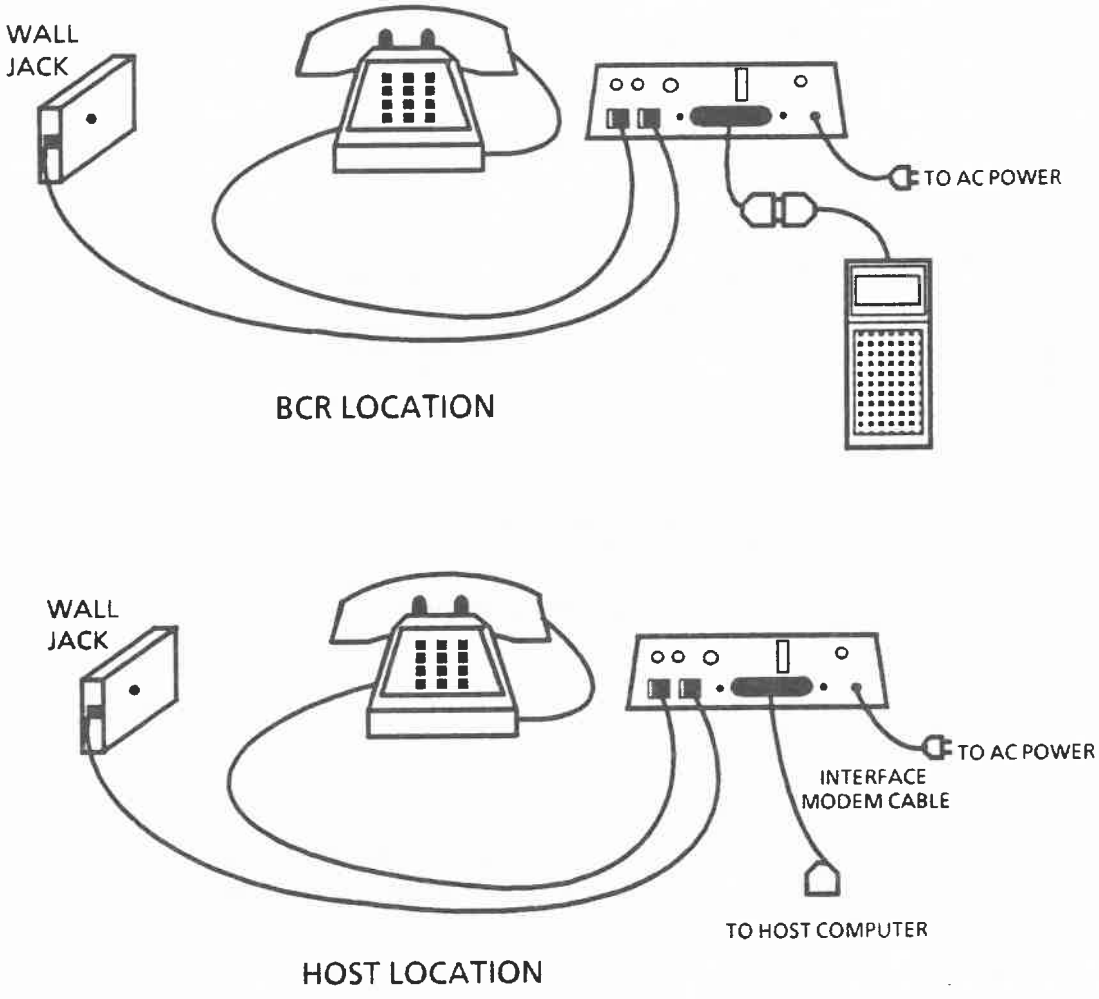


Figure 2-7. BCR to Host Computer Via Modem

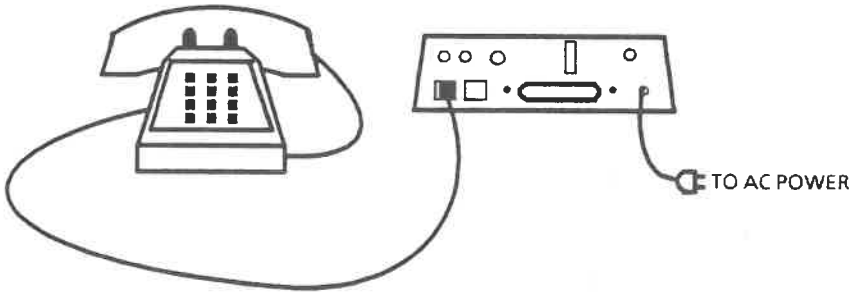


Figure 2-8. TELSET Connection

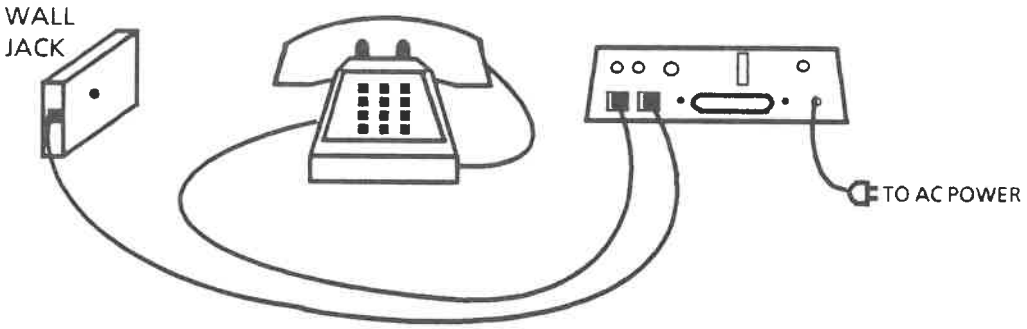


Figure 2-9. Wall Jack, Telephone Signal Cable, and Modem

CAUTION

Do not forcibly pull the RS232 connector cable from the interface modem cable. Improper disconnection can damage the connector pins.

(15) To disconnect interface modem cable from RS232 connector cable, carefully pull apart. Do not forcibly pull connectors apart.

(16) To disconnect RS232 connector cable from BCR, squeeze connector at BCR RS232 connector port and pull carefully.

(17) Replace rubber cap over BCR RS232 connector port.

f. BCR to Printer. (Refer to TM 11-5895-1387-13&P.)

CAUTION

Be sure the BCR and the printer are off before making any connections.

(1) Press BCR OFF key.

(2) Press printer OFF key.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Do not force the RS232 connector cable into the BCR RS232 connector port. Connecting improperly can damage the connector pins.

When using the interface printer cable, do not force the cable into either the RS232 connector cable or the printer. Connecting improperly can damage the connector pins.

(3) Remove rubber cap from BCR RS232 connector port. Connect RS232 connector cable to BCR RS232 connector port. See figure 2-5.

(4) Attach one end of interface printer cable to RS232 connector cable.

(5) Raise back panel access door.

(6) Attach other end of interface printer cable to RS232 connector port on printer. Tighten connecting screws by hand until secure. Do not overtighten. See figure 2-10.

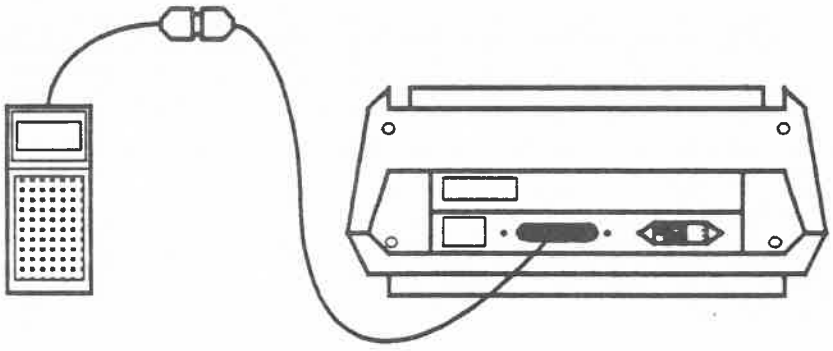


Figure 2-10. Attaching Interface Printer Cable to Printer

CAUTION

Do not forcibly pull the interface printer cable from the RS232 connector cable or the printer. Disconnecting improperly can damage the connector pin.

(7) To disconnect interface printer cable from RS232 connector cable or printer, carefully pull cable connectors apart. Do not forcibly pull cable connectors apart.

CAUTION

Do not pull the RS232 connector cable off the BCR RS232 connector port. Improper removal can damage the connector.

(8) To disconnect RS232 connector cable from BCR, squeeze connector at BCR RS232 connector port and pull carefully.

(9) Replace rubber cap over BCR RS232 connector port.

g. BCR to Modem to Field Wire Connection to Modem to Host Computer.

CAUTION

Be sure the BCR and modem are off before making any connections.

(1) Press BCR OFF key.

(2) Place modem POWER ON/OFF switch in OFF position.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Do not force the RS232 connector cable into the BCR RS232 connector port. Connecting improperly can damage the connector pins.

(3) Remove rubber cap BCR RS232 connector port. Connect the RS232 connector cable to the BCR RS232 connector port by carefully fitting the connector pins into the appropriate holes. See figure 2-5.

CAUTION

Do not force the interface modem cable into the RS232 connector cable or modem. Connecting improperly can damage the connector pins.

(4) Attach interface modem cable to RS232 connector cable.

(5) Connect other end of interface modem cable to DTE receptacle on back panel of modem. Hand tighten screws until secure.

(6) Connect field wire to spring-loaded binding posts on modem as follows. See figures 2-11 and 2-12.

(a) Press firmly on green TIP binding post until a small hole is revealed.

(b) Insert tip wire into small hole.

(c) Release post.

(d) Repeat steps (a) through (c) for red RING binding post and ring wire.

(7) To detach field wire from spring-loaded binding posts on modem, press in on each post and carefully pull wire out of hole.

(8) Disconnect cable from DTE port.

CAUTION

Do not forcibly pull the interface modem cable from the RS232 connector cable or modem. Disconnecting improperly can damage the connector pins.

(9) To disconnect interface modem cable from RS232 connector cable, carefully pull cable connectors apart. Do not forcibly pull cable connectors apart.

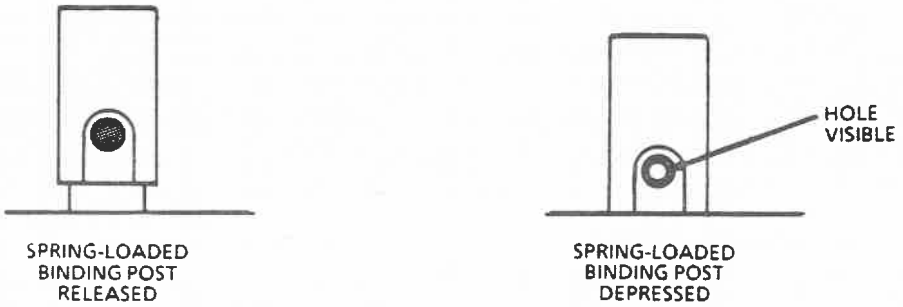


Figure 2-11. Spring-Loaded Binding Posts

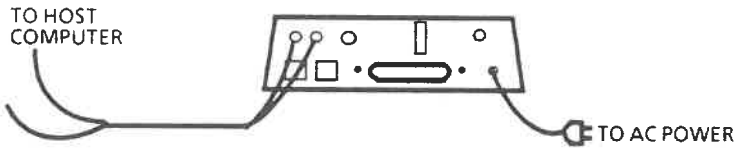


Figure 2-12. Field Wire Connection

CAUTION

Do not pull the RS232 connector cable off the BCR RS232 connector port without squeezing the connector base. Improper removal can damage the connector.

(10) To disconnect RS232 connector cable from BCR, squeeze connector at BCR RS232 connector port and pull carefully.

(11) Replace rubber cap over BCR RS232 connector port.

2-7 OPERATING PROCEDURES.

a. Collecting Data. Once you have installed the AA alkaline/nickel-cadmium batteries, the lithium coin cell, and the CAM, the BCR is ready for use. You can collect data in three ways: through the laser scanner, through the contact scanner, and by entering information via the BCR keyboard. To begin collecting data, proceed as follows.

(1) Laser Scanner. Perform the following steps to operate the laser scanner.

WARNING

To look along the axis of a laser beam without protective glasses is extremely dangerous. Align the laser so that personnel are unlikely to inadvertently look along the axis of its beam.

Laser firing systems may store a charge. Take care to prevent accidental pulsing of the laser and to avoid electric shock.

Reflections from the laser beam are extremely dangerous. It is essential that all reflective material be removed from its path.

CAUTION

Be sure that the BCR is off before connecting it to other equipment.

NOTE

Some laser scanners will not emit light when the trigger is initially depressed. This often happens in cold environments and when the unit has not been used for an extended period of time. If this situation occurs, depress and hold the trigger for 2 seconds repeatedly until the red laser light appears. Once the red laser light appears, the unit is ready for operation.

(a) Press OFF key on BCR.

(b) Make BCR to laser scanner connection. (Refer to paragraph 2-6 a.)

(c) Refer to STAMIS manual for operating instructions.

(d) Turn BCR on.

(e) Aim scanner at bar code symbol. Pull trigger on the scanner to the first position.

(f) Observe that the stationary spot of light comes on. Reposition the spot of light over the bar code symbol, if necessary.

(g) Pull the trigger on the scanner to the second position. Observe that the beam of light crosses every bar and space on the symbol. Hold down the trigger until the DECODE LED on the scanning head illuminates. Once this has occurred, release the trigger completely. See figure 2-13 for proper decoding technique.

(h) As a symbol is decoded, the following sequence typically occurs:

NOTE

Scanner is decoding bar code symbols and storing them as data.

1 A beep is emitted from the BCR.

2 The DECODE LED on the scan head illuminates.

3 The laser turns off.

4 The information on the scanned symbol is transmitted to the BCR display.

(i) Position larger symbols slightly farther from scanner than smaller symbols. Darker bar code symbols can be decoded at greater distances from scanner than lighter symbols. Experience with the unit will teach you the optimum distance to allow for each size symbol and code type.

(j) For best results, tilt bar code away from you. Tilting the bar code generally creates the best angle for decoding. For the best reading of bar codes on shiny surfaces, avoid pointing scanner straight at surface. This will cause a reflection to bounce back into the scanner and will prevent a successful decode. The symbol scanning dead zone is shown in figure 2-14.

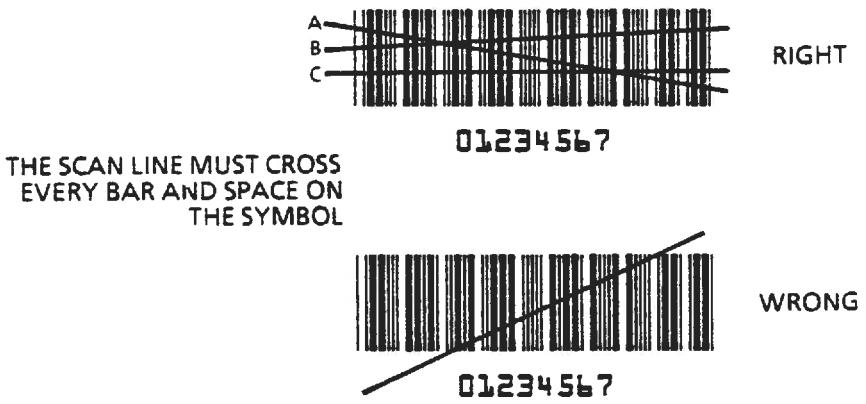


Figure 2-13. Proper Decoding Technique

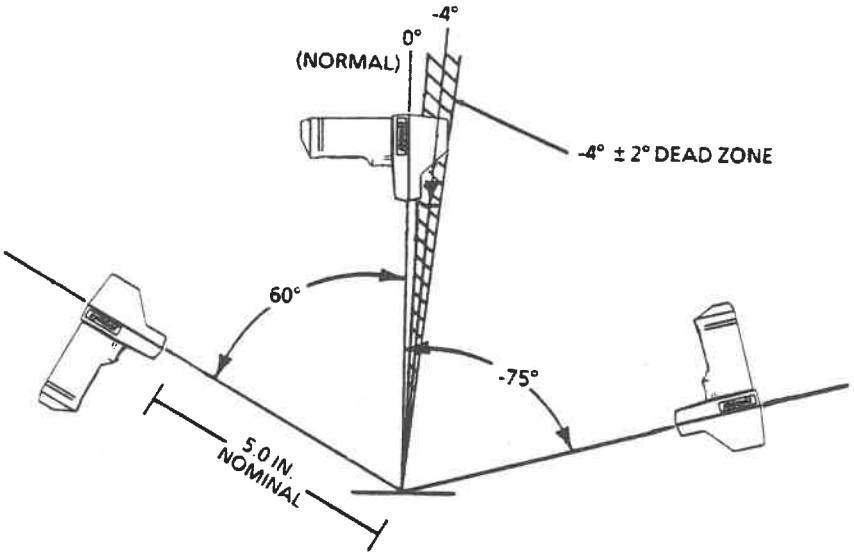


Figure 2-14. Laser Scanner Dead Zone

(k) To scan successfully make sure that bar code symbol is of good quality. Figure 2-15 shows bar code symbols of good and poor quality. Good quality bar code symbols have solid bars with sharp edges and spaces free of ink specs or dirt. They have no obvious signs of wear and tear. When you have a poor quality bar code symbol, scan the section of the bar code that has the cleanest and most clearly defined bars and spaces.

(l) Disconnect laser scanner from scanner port.

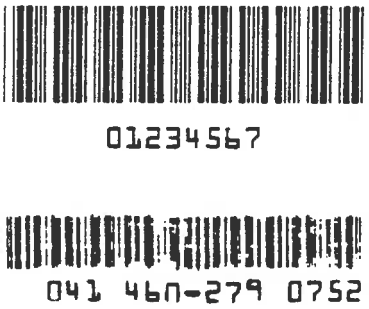


Figure 2-15. Bar Code Quality

(2) Contact Scanner. Perform the following steps to operate the contact scanner:

CAUTION

Be sure the BCR is off before connecting it to other equipment.

(a) Press OFF key on BCR.

(b) Make BCR to contact scanner connection. (Refer to paragraph 2-6 b.)

(c) Refer to STAMIS manual for operating instructions.

(d) Turn BCR on.

NOTE

Make sure the contact scanner tip is clear of obstructions and the bar code symbol is free of dirt or debris.

The contact scanner will operate over a tilt angle of 0° to 30°. For best performance, the tilt angle should be between 10° and 20°.

(e) Hold contact scanner in a comfortable position. It performs best when tilted between 10° and 20°, as shown in figure 2-16.

(f) Scan lightly and steadily across bar code from left to right. Begin to scan 1 inch to left of symbol. The tip of the contact scanner should be in light contact with the bar code while scanning to detect bar code information accurately. Pressing harder will not improve scanner performance.

(g) Use a scanning speed of 7.6 to 76 cm/sec (3 to 30 inches/sec). This is similar to the speed used for drawing a straight line with a ruler or for striking a match.

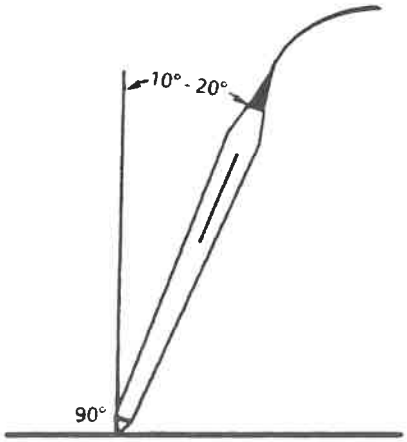


Figure 2-16. Contact Scanner Position

(h) To scan successfully, make sure that bar code symbol is of good quality. Figure 2-15 shows bar code symbols of good and poor quality. Good quality bar code symbols have solid bars with sharp edges and spaces free of ink specs or dirt. They have no obvious signs of wear and tear. When you have a poor quality bar code symbol, scan the section of the bar code that has the cleanest and most clearly defined bars and spaces.

(i) Stroke contact scanner across bar code symbol, making sure that you scan entire symbol.

(j) When the BCR beeps, the bar code symbol has been successfully scanned. You can move on to the next bar code label.

(k) Disconnect contact scanner from scanner port. Replace rubber cap over BCR scanner port.

(3) BCR Keyboard.

(a) Refer to STAMIS manual for operating instructions.

(b) Press ON key on BCR.

CAUTION

Be sure the BCR is not attached to other equipment when entering data.

(c) Using keyboard on BCR, punch in numbers you see at bottom of bar code label.

(d) When you have finished keying in numbers, press ENTER.

(e) You are now ready to enter a new bar code.

(4) Adjust the BCR display as necessary.

(a) To lighten the display screen, proceed as follows.

1 Press the BCR ON key.

2 Press the FUNC key.

3 Press the DOWN arrow key to lighten the display.

4 Steps 2 and 3 may be repeated up to four times to lighten the display.

(b) To darken the display screen, proceed as follows.

1 Press the BCR ON key.

2 Press the FUNC key.

3 Press the UP arrow key to darken the display.

4 Steps 2 and 3 may be repeated up to four times to darken the display.

b. Operating the BCR. You can start the BCR in one of several ways, depending on your intended use. The various startup methods and ways to use the BCR are described below.

(1) Initial Program Load.

CAUTION

Be sure the BCR is not connected to any other equipment when loading the CAM.

(a) Install CAM. (Refer to paragraph 2-5 c.)

(b) Press BCR ON key. Prompt will indicate BCR is loading. The BCR will then display the name/information about the installed CAM.

(2) Program Restart.

NOTE

When using program restart, the program will restart at the point it was left off and no data will be lost.

(a) Press BCR OFF key.

(b) Press BCR ON key. The BCR prompt will be the same as before the BCR was turned off.

(3) Diagnostic Initialization/Command Mode Entry.

(a) Press BCR OFF.

(b) Hold down BCR SPACE key and SHIFT key and at same time press ON key.
Prompt: M-1800-00-X
$ BIT TEST

(c) You are now ready to begin the Built In Test (BIT). (Refer to paragraph 3-2.)

(4) Cold Start.

CAUTION

Do not perform a cold start with data residing in the BCR memory. Starting an applications program in this manner will destroy previously stored data.

(a) Press BCR OFF key.

(b) Hold down BCR SPACE, SHIFT, and - (minus) keys, and at same time press ON key. The prompt will indicate that the BCR is loading and will then display the name/information about the installed CAM.

(5) Uploading Data from BCR to Host Computer.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Ensure that the BCR is off before connecting to any other equipment.

(a) Make a BCR to host computer connection. (Refer to paragraph 2-6 d.)

(b) Press ON key on BCR.

(c) Refer to STAMIS manual for operating instructions.

(d) Press OFF.

(e) Disconnect BCR from host computer. (Refer to paragraph 2-6 d.)

(6) Downloading Data from Host Computer to BCR.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed covering.

Ensure that the BCR is off before connecting to any other equipment.

(a) Make a BCR to host computer connection. (Refer to paragraph 2-6 d.)

(b) Press ON key on BCR.

(c) Refer to STAMIS manual for operating instructions.

(d) Press OFF.

(e) Disconnect BCR from host computer. (Refer to paragraph 2-6 d.)

(7) Uploading Data from BCR to Host Computer via Modem.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Ensure that the BCR and the modem are off before connecting to any other equipment.

(a) Make a BCR to host computer via modem connection. (Refer to paragraph 2-6 e.)

(b) Press ON key on BCR.

(c) Refer to STAMIS manual for operating instructions.

(d) Turn modem switch to OFF. Press OFF key on BCR.

(e) Disconnect cable. (Refer to paragraph 2-6 e.)

(8) Downloading Data from Host Computer to BCR via Modem.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Ensure that the BCR and the modem are off before connecting to any other equipment.

(a) Make a BCR to host computer via modem connection. (Refer to paragraph 2-6 e.)

(b) Press ON key on BCR.

(c) Refer to STAMIS manual for operating instructions.

(d) Turn modem POWER ON/OFF to OFF. Press OFF key on BCR.

(e) Disconnect cable. (Refer to paragraph 2-6 e.)

(9) Downloading Program from host to BCR.

(a) Make a BCR to host computer connection. (Refer to paragraph 2-6d.)

(b) Hold down BCR SPACE key and SHIFT key and at the same time press ON key.
Prompt: M-1800-00-X
$ BIT TEST

(c) Scroll (using up or down arrow) until prompt reads:
Prompt: M-1800-00-X
$ DOWNLOAD

(d) Press ENTER.
Prompt: DOWNLOAD
Y/N?

(e) Press Y.
Prompt: PROG NAME:
(Enter name of program)

(f) Press ENTER.
Prompt: COMM PORT
RS232

(g) Press ENTER.
Prompt: MODEM:
V.23

(h) Press ENTER.
Prompt: MODEM DELAY=
200

(i) Scroll until it reads:
Prompt: MODEM DELAY=
0

(j) Press ENTER.
Prompt: BAUD RATE=
1200

(k) Scroll until it reads:
Prompt: BAUD RATE=
9600

(l) Press ENTER.
Prompt: ENTER WHEN READY

(m) Press ENTER.
Prompt: COMM READY
(Prompt will stay on viewing screen during process.)

(n) When download is successful it will read:
Prompt: STATUS 0

NOTE

If status is other than 0, repeat steps (a) through (n) until download is successful.

(o) BCR will automatically shut off.

(p) Hold down SHIFT and SPACE and at the same time press ON key.
Prompt: M-1800-00-X
$ BIT TEST

(q) Scroll until it reads:
Prompt: M-1800-00-X
$ DIRECTORY

(r) Press ENTER.
Prompt: DIRECTORY
Y/N?

(s) Press Y.
Prompt: (Title of program)

(t) Press ENTER.
Prompt: LOADING
(Title of program)
Disconnect BCR from host computer. (Refer to paragraph 2-6 d.)

(10) Transferring Program from BCR to BCR.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Ensure that the BCR is off before connecting it to any other equipment.

NOTE

Program must be loaded in BCR prior to program send.

(a) Identify which is BCR #1 (containing data to be transferred) and which is BCR #2 (receiving data from BCR #1).

(b) Make a BCR to BCR connection. (Refer to paragraph 2-6 c.)

(c) On BCR #1, hold down SHIFT and SPACE and at same time press ON key.
Prompt: M-1800-00-X
$ BIT TEST

(d) Scroll until prompt reads:
M-1800-00-X
$ PROGRAM SEND

(e) Press ENTER.
Prompt: PROGRAM SEND
Y/N

(f) Press Y.
Prompt: COMM PORT =
RS232

(g) Press ENTER.
Prompt: MODEM
V.23

(h) Press ENTER.
Prompt: MODEM DELAY =
200

(i) Scroll until prompt reads:
MODEM DELAY =
0

(j) Press ENTER.
Prompt: BAUD RATE = XXXX

(k) Scroll until prompt reads:
BAUD RATE =
9600

(l) Press ENTER.
Prompt: ENTER WHEN READY

(m) Put BCR #1 aside.

NOTE

The instructions in steps (n) through (w) are for BCR #2.

(n) On BCR #2, hold down SHIFT and SPACE keys and at same time press ON.
Prompt: M-1800-00-X
$ BIT TEST

(o) Scroll until prompt reads:
M-1800-00-X
$ PROGRAM RECV

(p) Press ENTER.
Prompt: PROGRAM RECV
Y/N

(q) Press Y.
Prompt: COMM PORT =
RS232

(r) Press ENTER.
Prompt: MODEM =
V.23

(s) Press ENTER.
Prompt: MODEM DELAY =
200

(t) Scroll until prompt reads:
MODEM DELAY =
0

(u) Press ENTER.
Prompt: BAUD RATE = XXXX

(v) Scroll until prompt reads:
BAUD RATE =
9600

(w) Press ENTER.
Prompt: ENTER WHEN READY

(x) On BCR #1, press ENTER.
On BCR #2, press ENTER.
Prompt: COMM READY (Message will appear on both BCR's and
Prompt: COMM READY indicates transmission of program.)

(y) On BCR #1, when STATUS 0 appears on completion of transmission, press CLEAR.
(NOTE: Press only once.)
Press OFF. Set BCR #1 aside.

NOTE

If status is other than 0, repeat steps (a) through (y) until transfer is successful.

(z) On BCR #2, press CLEAR. (NOTE: Press only once.)

(aa) Scroll until prompt reads:
M-1800-00-X
$DIRECTORY

(ab) Press ENTER.
Prompt: DIRECTORY
Y/N?

(ac) Press Y.
Prompt will be dependent on the programs in the BCR. If there are multiple programs in the directory, you will need to scroll to find the program you want to load. When that program is displayed, press ENTER.

(ad) Press OFF. Set BCR #2 aside.

(11) Transferring Data from BCR to BCR.

NOTE

Data must be loaded in BCR prior to transferring data.

(a) On BCR#1, hold down SHIFT and SPACE keys and at same time press ON key.
Prompt: M-1800-00-X
$ BIT TEST

(b) Scroll until prompt reads:
M-1800-00-X
$ DATA SEND

(c) Press ENTER.
Prompt: DATA SEND
Y/N?

(d) Press Y.
Prompt: LOADING, CLONE
DATA SEND
COMM PORT =
RS232

(e) Press ENTER.
Prompt: MODEM =
V.23

(f) Press ENTER.
Prompt: MODEM DELAY =
200

(g) Scroll until prompt reads:
MODEM DELAY =
0

(h) Press ENTER.
Prompt: BAUD RATE =
9600

(i) Press ENTER.
Prompt: ENTER WHEN READY

(j) Set BCR #1 aside.

(k) On BCR #2, hold down SHIFT and SPACE keys and at same time press ON key.
Prompt: M-1800-00-X
$ BIT TEST

(l) Scroll until prompt reads:
M-1800-00-X
$ DATA RECV

(m) Press ENTER.
Prompt: DATA RECV
Y/N?

(n) Press Y.
Prompt: LOADING
CLONE DATA RECV
COMM PORT =
RS232

(o) Press ENTER.
Prompt: MODEM =
V.23

(p) Press ENTER.
Prompt: MODEM DELAY =
200

(q) Scroll until prompt reads:
MODEM DELAY =
0

(r) Press ENTER.
Prompt: BAUD RATE =
9600

(s) Press ENTER.
Prompt: ENTER WHEN READY
On BCR #1 press ENTER.
On BCR #2 press ENTER.
Prompt: TEST DATA # BLOCKS
FILE SENT
M-1800-00-X
$ BIT TEST
Prompt: TEST DATA # BLOCKS
FILE READ
M-1800-00-X
$ BIT TEST

(t) On both BCR's, press OFF.

(u) Disconnect both BCR's. (Refer to paragraph 2-6c.)

(12) Transferring Data from BCR to Printer.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Ensure that the BCR and the printer are off before connecting to other equipment.

(a) Make a BCR to printer connection. (Refer to paragraph 2-6 f.)

(b) Press ON key on BCR.

(c) Switch printer on.

(d) Verify printer baud rate conforms with STAMIS requirements. (Refer to TM 11-5895-1387-13&P.)

(e) Refer to STAMIS manual for operating instructions.

(f) Press OFF key on BCR.

(g) Switch printer OFF.

(h) Disconnect cables. (Refer to paragraph 2-6 f.)

(13) Transferring Data from BCR to Host Computer via Modem with Field Wire.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Ensure that the BCR and modem are off before connecting to other equipment.

(a) Contact host computer operator via field phone to arrange for data transfer.

(b) Disconnect field wire from field phone.

(c) Make a BCR to host via field wire connection. (Refer to paragraph 2-6 g.)

(d) Set modem DIP switches to tactical configuration. (Refer to TM 11-7025-263-13&P.)

(e) Switch modem power ON.

(f) Press ON key on BCR.

(g) Refer to STAMIS manual for operating instructions.

(h) Switch modem POWER ON/OFF to OFF.

(i) Press BCR OFF.

(j) Disconnect cables. (Refer to paragraph 2-6 g.)

(k) Reset DIP switches to TELCO configuration. (Refer to TM 11-7025-263-13&P.)

(14) Transferring Data from Host Computer to BCR via Field Wire.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Ensure that the BCR and modem are off before connecting to other equipment.

(a) Contact host computer operator to arrange for data transfer.

(b) Disconnect field wire from field phone.

(c) Make a BCR to host via field wire connection. (Refer to paragraph 2-6 g.)

(d) Set DIP switches for field wire connection. (Refer to TM 11-7025-263-13&P.)

NOTE

Tip wire should connect on TIP wire binding post; ring wire should connect on RING wire binding post.

(e) Switch modem to ON.

(f) Set mode selector switch to DATA.

(g) Press ON key on BCR.

(h) Refer to STAMIS manual for operating instructions.

(i) Switch modem off.

(j) Press BCR OFF.

(k) Disconnect cables from BCR and modem. (Refer to paragraph 2-6 g.)

(l) Reset DIP switches. (Refer to TM 11-7025-263-13&P.)

CHAPTER 3
UNIT MAINTENANCE INSTRUCTIONS

3-1 PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS).

a. Inspection. Examine each item for obvious damage. Check cables for bent or broken pins and frayed coverings. Make sure the BCR, laser scanner, and contact scanner have not been exposed to moisture or abrasive materials.

b. Cleaning.

(1) BCR.

CAUTION

Be sure BCR is OFF before cleaning. Do not soak cleaning cloth with liquid cleaner. Do not drop or spill liquid on the BCR. Do not use spray cleaners.

(a) Slightly moisten a clean, lint-free cloth with a general-purpose cleaner.

CAUTION

Do not clean inside connector ports.

(b) Wipe BCR exterior only.

(c) Clean exterior of connector ports on top of BCR.

(d) Dry exterior with a clean, dry, lint-free cloth.

(2) Laser Scanner.

CAUTION

Disconnect laser scanner from BCR before cleaning. Do not allow any abrasive materials to touch the windows.

(a) Windows.

1 Slightly moisten a clean, lint-free cloth with a general-purpose cleaner.

2 Wipe exit and photo scanner windows with cleaner-moistened cloth.

3 Dry windows with a clean, dry, lint-free cloth to prevent streaks.

(b) Exterior.

1 Slightly moisten a clean, lint-free cloth with a general-purpose cleaner.

2 Wipe exterior with cleaner-moistened cloth.

3 Dry exterior with a clean, dry lint-free cloth.

(3) Contact Scanner.

CAUTION

Disconnect contact scanner from BCR before cleaning. Do not attempt to clean the tip of the contact scanner.

(a) Slightly moisten a clean, lint-free cloth with a general-purpose cleaner.

(b) Wipe exterior with cleaner-moistened cloth.

(c) Dry exterior with a clean, dry, lint-free cloth.

(4) Cables.

CAUTION

Disconnect cables from equipment before cleaning. Do not attempt to clean metal parts of cables.

(a) Slightly moisten a clean, lint-free cloth with general-purpose cleaner.

(b) Wipe length and external, nonmetallic handling area of each cable with cleaner-moistened cloth.

(c) Wipe again with a clean, damp cloth.

(d) Dry length and handling areas of each cable with clean, dry, lint-free cloth.

3-2 BCR TESTING. The BCR has a BIT to ensure that the BCR and scanners are operating properly. A CAM is not needed to run the BIT. The BIT may be started and ended at any time. These tests may occur automatically in a specific order (auto mode) (refer to paragraph 3-2 a), or they may be selected manually to allow you to run or re-run any one of the tests (manual mode) (refer to paragraph 3-2 b). These two modes are described separately in the paragraphs below. For an explanation of the BIT menu, refer to table 3-1.

Table 3-1. BIT Menu Explanation

BIT Menu	Function of Test
1 EPROM TEST	EPROM TEST will test the Run Time System (RTS) and the CAM.
2 DISPLAY TEST	DISPLAY TEST will test the BCR display screen and backlight capability.
3 BATTERY TEST	BATTERY TEST will test the alkaline/nickel-cadmium batteries.
4 CLOCK TEST	CLOCK TEST will test the clock and calendar within the BCR.
5 KEYBOARD TEST	KEYBOARD TEST will test the function of the keyboard characters.
6 MEMORY TEST	MEMORY TEST will test the information memory within the BCR.
7 RS232 TEST	RS232 TEST will test the RS232 port, modem cable, null modem cable, printer cable, and RS232 connector cable.
8 SCANNER PORT TEST	SCANNER PORT TEST will test the scanner port, laser scanner, and contact scanner.

NOTE

A HELP file is available for each test. To display a brief description of the current test and how it works, press the FUNC key followed by the H key. The HELP text will be displayed 32 characters at a time. Press the up or down arrow key to scroll through all of the messages. To exit HELP and continue the test, press the CLEAR key.

a. *Auto Mode.*

NOTE

Follow all safety instructions for the BCR. If at any time you receive a test result indicating a BCR scanner malfunction, exit the BIT by pressing the CLEAR key twice, and return the BCR to intermediate direct support. This test is not random selectible. Once started, it must be completed.

(1) Press OFF key on BCR.

(2) Hold down SPACE and SHIFT keys, and at same time press ON key.
Prompt: `M-1800-00-X`
`$ BIT TEST`

(3) Press ENTER.
Prompt: `BIT TEST`
`Y/N?`

(4) Press Y for yes.
Prompt: LOADING
Prompt: PRESS FUNC H
FOR HELP
Prompt: 1 AUTO MODE

(5) Press ENTER.
Prompt: EPROM TEST
PRESS ENTER

(6) Press ENTER.
Prompt: GUARANTEE BOOT
CALCULATING . . .
Prompt: RTS IS (GOOD/BAD) XXXX
CAM IS (GOOD/BAD/MISSING) XXXX

NOTE

If the RTS or the CAM is found to be bad or missing, replace the CAM. If the prompt continues to read BAD or MISSING, return the BCR to intermediate direct support.

(7) Press ENTER.
Prompt: DISPLAY TEST
PRESS ENTER

(8) Press ENTER. Observe Display Test results.
Prompt: DISPLAY (GOOD/BAD) XXXX
XXXXXXXXXXXXXXXXX

NOTE

If the display is found to be bad, rerun the Display Test. If the prompt continues to read BAD, return the BCR to intermediate direct support.

(9) To test BCR backlight capability while Display Test is running, press FUNC and then B. The backlight will come on for about 15 seconds.

(10) To change BCR viewing angle, press FUNC and then up or down arrow key to obtain one of the different viewing angle settings. Repeat FUNC and up or down arrow key sequence until you are comfortable with viewing angle.

(11) Press ENTER.
Prompt: BATTERY TEST
PRESS ENTER

(12) Press ENTER.
Observe the Battery Test results.
Prompt: BATTERY LEVEL
(GOOD
LOW BATT 1,
LOW BATT 2,
REPLACE BATT)

NOTE

If the battery level reads LOW BATT, replace all the primary batteries. If the prompt continues to read LOW BATT or REPLACE BATT, return the BCR to intermediate direct support.

(13) Press ENTER.
Prompt: CLOCK TEST
PRESS ENTER

(14 Press ENTER.
Prompt: VIEW TIME/DATE
PRESS ENTER

(15) Press ENTER.
Prompt: DATE XX:XX:XX (Month, Day, Year)
TIME XX:XX:XX (Hour, Minute, Seconds)

(16) Press ENTER.
Prompt: SET TIME/DATE
PRESS ENTER

(17) Press ENTER.
Prompt: DATE MM:DD:YY
V_:_ _:_ _

(18) Press appropriate keys to enter current month (01-12), current day of month (01-31), and year (the last two digits).
Prompt: TIME HH:MM:SS
V_:_ _:_ _

(19) Press appropriate keys to enter hour (01-23), minutes (01-59), and seconds (00-59). If an invalid date or time is entered, the BCR will beep three times and the prompt will read:
BAD DATE/TIME
If a valid date or time is entered, the prompt will read:
WAKE-UP TEST
PRESS ENTER

NOTE

If an invalid date or time is entered, you must re-enter the correct date and time. If the prompt continues to read BAD DATE/TIME, return the BCR to intermediate direct support.

(20) Press ENTER.
Prompt: MINUTES V_____

(21) Press 1. Press ENTER.

(22) Observe that BCR turns itself off. After a time up to 1 minute, the BCR automatically turns on, and beeps three times.
Prompt: WAKE-UP OKAY

(23) Press ENTER.
Prompt: KEYBOARD TEST
PRESS ENTER

(24) Press ENTER.
Prompt: KEYBOARD TEST
KEY =

(25) Press any key except ON, OFF, or left arrow key. Observe BCR displaying numerical value of key pressed.
Prompt: KEYBOARD TEST
KEY =

(26) Press ENTER twice.
Prompt: MEMORY TEST
PRESS ENTER

(27) Press ENTER. Observe prompt indicating test results.
Prompt: TESTING
Prompt: SYSTEM MEM XK
USER MEM XXK

(28) Press ENTER.
Prompt: RS232 TEST
PRESS ENTER

(29) Press ENTER.
Prompt: LOOP-BACK
PRESS ENTER

(30) Press ENTER.
Prompt: ATTCH DIAGNOSTIC
PLUG PRESS ENTER

(31) Press BCR OFF. Remove rubber cap from BCR RS232 connector port. Attach RS232 connector cable to RS232 connector port on BCR. Connect diagnostic plug and RS232 connector cable to each other.

(32) Press BCR ON.
Prompt: ATTCH DIAGNOSTIC
PLUG PRESS ENTER

(33) Press ENTER.
Prompt: RS232 PORT
(GOOD/BAD) XXXX

NOTE

If the RS232 connector port is found to be bad, make sure the diagnostic plug is properly connected to the RS232 connector cable. If, after running the RS232 Port Test a second time, the prompt still reads BAD, return the BCR to intermediate direct support.

(34) Press ENTER.
Prompt: MODEM CABLE TEST
PRESS ENTER

(35) Press ENTER.
Prompt: ATTCH MODEM CBLE
PRESS ENTER

(36) Press BCR OFF. Disconnect diagnostic plug from RS232 connector cable.

(37) Connect one end of the interface modem cable to the RS232 connector cable. Attach gender changer to the other end of the interface modem cable, and attach diagnostic plug to the gender changer. Hand tighten screws.

(38) Press BCR ON.
Prompt: ATTCH MODEM CBLE
PRESS ENTER

(39) Press ENTER.
Prompt: MODEM CABLE
(GOOD/BAD) XXXX

NOTE

If the modem cable is found to be bad, make sure it is properly connected to the RS232 connector cable. If, after running the Modem Cable Test a second time, the prompt still reads BAD, return the BCR to intermediate direct support.

(40) Press BCR OFF. Disconnect interface modem cable from RS232 connector cable and gender changer.

(41) Press BCR ON.
Prompt: MODEM CABLE
(GOOD/BAD) XXXX

(42) Press ENTER.
Prompt: NULL MODEM TEST
PRESS ENTER

(43) Press ENTER.
Prompt: ATTCH NULL MODEM
PRESS ENTER

(44) Press BCR OFF.

(45) Connect one end of null modem interface cable to the RS232 connector cable. Attach gender changer and diagnostic plug to the other end. Hand tighten screws.

(46) Press BCR ON.
Prompt: ATTCH NULL MODEM
PRESS ENTER

(47) Press ENTER.
Prompt: SWAP CABLE ENDS
PRESS ENTER

(48) Press BCR OFF. Swap the end of the null modem interface cable connected to the RS232 connector cable with the end connected to the gender changer. Hand tighten screws.

(49) Press BCR ON.
Prompt: SWAP CABLE ENDS
PRESS ENTER

(50) Press ENTER.
Prompt: NULL MODEM
(GOOD/BAD) XXXX

NOTE

If the null modem interface cable is found to be bad, make sure it is attached to the RS232 connector cable and gender changer. If, after running the Null Modem Test a second time, the prompt still reads BAD, return the BCR to intermediate direct support.

(51) Press BCR OFF. Disconnect null modem interface cable from RS232 connector cable and gender changer.

(52) Press BCR ON.
Prompt: NULL MODEM
(GOOD/BAD) XXXX

(53) Press ENTER.
Prompt: PRNTR CABLE TEST
PRESS ENTER

(54) Press ENTER.
Prompt: ATTACH PRINTER
CBLE PRESS ENTER

(55) Press BCR OFF. Attach interface printer cable following the same procedure found in step (45).

(56) Press BCR ON.
Prompt: ATTACH PRINTER
CBLE PRESS ENTER

(57) Press ENTER.
Prompt: SWAP CABLE ENDS
PRESS ENTER

(58) Press BCR OFF. Swap cable following the same procedure found in step (48).

(59) Press BCR ON.
Prompt: SWAP CABLE ENDS
PRESS ENTER

(60) Press ENTER.
Prompt: PRNTR CABLE
(GOOD/BAD) XXXX

(61) Press BCR OFF. Disconnect interface printer cable, RS232 connector cable, gender changer, and diagnostic plug. Replace rubber cap over BCR RS232 connector port.

(62) Press BCR ON.
Prompt: PRNTR CABLE
(GOOD/BAD) XXXX

NOTE

If the printer cable is found to be bad, make sure it is attached to the RS232 connector cable and gender changer properly. If, after running the Printer Cable Test a second time, the prompt still reads BAD, return the BCR to intermediate direct support.

(63) Press ENTER.
Prompt: SCNNR PORT TEST
PRESS ENTER

(64) Press ENTER.
Prompt: LOOPBACK TEST
PRESS ENTER

(65) Press ENTER.
Prompt: ATTCH DIAGNOSTIC
PLUG PRESS ENTER

(66) Press BCR OFF. Remove rubber cap from BCR scanner port.

(67) Attach diagnostic plug to BCR scanner port.

(68) Press BCR ON.
Prompt: ATTCH DIAGNOSTIC
PLUG PRESS ENTER

(69) Press ENTER.
Prompt: SCNNER PORT XXXX
(GOOD OR BAD)

(70) Press BCR OFF. Detach diagnostic plug from BCR.

(71) Press BCR ON.
Prompt: SCNNER PORT XXXX
(GOOD OR BAD)

(72) Press ENTER.
Prompt: LASER SCNNR TEST
PRESS ENTER

(73) Press ENTER.
Prompt: ATTACH LASER
PRESS ENTER

(74) Press BCR OFF and attach laser scanner to the scanner port.

(75) Press BCR ON.
Prompt: ATTACH LASER
PRESS ENTER

(76) Press ENTER.
Prompt: PRESS ENTER
WHEN DONE

(77) Aim laser scanner at bar code label. Pull trigger to the first position. Observe that the stationary spot of light comes on. Pull trigger to the second position. Observe that the DECODE LED illuminates.

(78) Press ENTER.
Prompt: LASER SCNNR XXXX
(GOOD OR BAD)

(79) Press ENTER.
Prompt: CNTCT SCNNR TEST
PRESS ENTER

(80) Press BCR OFF and detach laser scanner; then attach contact wand scanner.

(81) Press BCR ON.
Prompt: ATTACH CNTCT
PRESS ENTER

(82) Press ENTER.
Prompt: PRESS ENTER
WHEN DONE

(83) Make sure the contact wand scanner is on.

(84) Press ENTER.
Prompt: CNTCT SCNNR XXXX
(GOOD OR BAD)

(85) Press BCR OFF. Disconnect the scanner. Replace rubber cap over BCR scanner port.

(86) Press BCR ON.
Prompt: CNTCT SCNNR XXXX
(GOOD OR BAD)

(87) Press CLEAR key twice to return to:
Prompt: M-1800-00-X
$ BIT TEST

(88) Turn BCR OFF.

b. Manual Mode. During the manual mode, the BIT may be run in any sequence, and any or all of the tests may be run.

NOTE

Follow all safety instructions designated for the BCR. If at any time you receive a test result indicating a BCR malfunction, return the BCR to intermediate direct support.

(1) Press OFF key on BCR.

(2) Hold down SHIFT and SPACE keys, and at same time press ON key.
Prompt: M-1800-00-X
$ BIT TEST

(3) Press ENTER.
Prompt: BIT TEST
Y/N?

(4) Press Y for yes.
Prompt: LOADING
Prompt: PRESS FUNC H
FOR HELP
Prompt: 1 AUTO MODE

(5) Press down arrow key.
Prompt: 2 MANUAL MODE

(6) Press ENTER.
Prompt: 1 EPROM TEST

(7) Press up or down arrow key to observe each test on the menu:
1 EPROM TEST (Refer to steps (8)-(10).)
2 DISPLAY TEST (Refer to steps (11)-(16).)
3 BATTERY TEST (Refer to steps (17)-(20).)
4 CLOCK TEST (Refer to steps (21)-(36).)
5 KEYBOARD TEST (Refer to steps (37)-(41).)
6 MEMORY TEST (Refer to steps (42)-(45).)
7 RS232 TEST (Refer to steps (46)-(97).)
8SCNNR PORT TEST (Refer to steps (98)-(126).)
1 EPROM TEST

(8) Press ENTER.
Prompt: EPROM TEST
PRESS ENTER

(9) Press ENTER.
Observe Eprom Test results:
Prompt: GUARANTEE BOOT
CALCULATING . . .
Prompt: RTS IS XXXX (GOOD/BAD)
CAM IS XXXX (GOOD/BAD/MISSING)

NOTE

If the RTS or the CAM is found to be bad or missing, replace the CAM. If the prompt continues to read BAD or MISSING, return the BCR to intermediate direct support.

(10) Press ENTER.
Prompt: 1 EPROM TEST

(11) Press up or down arrow key until the prompt reads:
2 DISPLAY TEST

(12) Press ENTER.
Prompt: DISPLAY TEST
PRESS ENTER

(13) Press ENTER. Observe Display Test results.
Prompt: DISPLAY XXXX (GOOD/BAD)
ABCDEFGHIJKLMNOP

NOTE

If the display is found to be bad, rerun the Display Test. If the prompt continues to read BAD, return the BCR to the direct supply support activity.

(14) To test BCR backlight capability while Display Test is running, press FUNC and then B. The backlight will come on for about 15 seconds.

(15) To change BCR viewing angle, press FUNC and up or down arrow key to obtain one of different viewing angle settings. Repeat FUNC and up or down arrow key sequence until you are comfortable with viewing angle.

(16) Press ENTER.
Prompt: 2 DISPLAY TEST

(17) Press up or down arrow key until the prompt reads:
Prompt: 3 BATTERY TEST

(18) Press ENTER.
Prompt: BATTERY TEST
PRESS ENTER

(19) Press ENTER. Observe Battery Test results.
Prompt: BATTERY LEVEL
(GOOD/LOW BATT 1/LOW BATT 2/REPLACE CELLS)

NOTE

If the battery level reads LOW BATT, replace all the primary batteries. If the prompt continues to read LOW BATT or REPLACE CELLS, return the BCR to intermediate direct support.

(20) Press ENTER.
Prompt: 3 BATTERY TEST

(21) Press up or down arrow key until prompt reads:
Prompt: 4 CLOCK TEST

(22) Press ENTER.
Prompt: CLOCK TEST
PRESS ENTER

(23) Press ENTER.
Prompt: 1 VIEW TIME/DATE

(24) Press down arrow key to observe tests on clock submenu:
1 VIEW TIME/DATE
2 SET TIME/DATE
3 WAKE-UP TEST

(25) When 1 VIEW TIME/DATE appears on prompt, press ENTER.
Prompt: DATE XX:XX:XX (Month, Day, Year)
TIME XX:XX:XX (Hour, Minute, Seconds)

(26) Press ENTER.
Prompt: 1 VIEW TIME/DATE

(27) Press down arrow key.
Prompt: 2 SET TIME/DATE

(28) Press ENTER.
Prompt: DATE MM:DD:YY
V_:_ _:_ _

(29) Press appropriate keys to enter current month (01-12), current day of month (01-31), and year (the last two digits). After entering these digits, prompt will read:

TIME: HH:MM:SS
V_:_ _:_ _

(30) Press appropriate keys to enter hour (00-23), minutes (01-59), and seconds (00-59). If an invalid date or time is entered, prompt will read:

BAD DATE/TIME

If a valid date and time are entered, prompt will read:

2 SET TIME/DATE

NOTE

If an invalid date or time is entered, you must re-enter the correct date and time. If the prompt continues to read BAD DATE/TIME, return the BCR to intermediate direct support.

(31) Press down arrow key.
3 WAKE-UP TEST

(32) Press ENTER.
Prompt: MINUTES V_____

(33) Press a number from 1 to 59. (Use 1 for quickest results.) Press ENTER.

(34) Observe that BCR powers itself off. After a time of up to 1 minute, the BCR automatically turns on, beeps three times, and displays:

WAKE-UP OKAY

(35) Press ENTER.
Prompt: 3 WAKE-UP TEST

(36) Press CLEAR.
Prompt: 4 CLOCK TEST

(37) Press up or down arrow key until prompt reads:
5 KEYBOARD TEST

(38) Press ENTER.
Prompt: KEYBOARD TEST
PRESS ENTER

(39) Press ENTER.
Prompt: KEYBOARD TEST
KEY =

(40) Press any key except the ON, OFF, or left arrow key. Observe BCR displaying numerical value of key pressed.

(41) Press ENTER twice.
Prompt: 5 KEYBOARD TEST

(42) Press down arrow key.
Prompt: 6 MEMORY TEST

(43) Press ENTER.
Prompt: MEMORY TEST
PRESS ENTER

(44) Press ENTER.
Prompt: TESTING
Prompt: SYSTEM MEM XK
USER MEM XXK

(45) Press ENTER.
Prompt: 6 MEMORY TEST

(46) Press down arrow key.
Prompt: 7 RS232 TEST

(47) Press ENTER.
Prompt: RS232 TEST
PRESS ENTER

(48) Press ENTER.
Prompt: 1 LOOP-BACK TEST

(49) Press down arrow key to observe the RS232 test menu which includes:
1 LOOP-BACK TEST
2 MODEM CABLE TEST
3 NULL MODEM TEST
4 PRINTER CABLE TEST

(50) Press down arrow key until prompt reads:
Prompt: 1 LOOP-BACK TEST

(51) Press ENTER
Prompt: ATTCH DIAGNOSTIC
PLUG PRESS ENTER

(52) Press BCR OFF.

(53) Remove rubber cap from BCR RS232 connector port and attach RS232 connector cable. Connect diagnostic plug and RS232 connector cable to each other.

(54) Press BCR ON.

Prompt: ATTCH DIAGNOSTIC
PLUG PRESS ENTER

(55) Press ENTER.
Prompt: RS232 PORT XXXX
(GOOD OR BAD)

NOTE

If the RS232 connector port is found to be bad, make sure the diagnostic plug is properly connected to the RS232 connector port. If, after running the RS232 Port Test a second time, the prompt still reads BAD, return the BCR to intermediate direct support.

(56) Press BCR OFF.

(57) Disconnect diagnostic plug from RS232 connector cable.

(58) Press BCR ON.
Prompt: RS232 PORT XXXX
(GOOD OR BAD)

(59) Press ENTER.
Prompt: 1 LOOP-BACK TEST

(60) Press down arrow key until display reads:
Prompt: 2 MODEM CABLE
TEST

(61) Press ENTER.
Prompt: ATTCH MODEM CABLE
PRESS ENTER

(62) Press BCR OFF.

(63) Connect one end of interface modem cable to RS232 connector cable. Attach gender changer to other end of interface modem cable and attach diagnostic plug to gender changer. Hand tighten screws.

(64) Press BCR ON.

(65) Prompt: ATTCH MODEM CABLE
PRESS ENTER

(66) Press ENTER.
Prompt: MODEM CABLE XXXX
(GOOD OR BAD)

NOTE

If the modem cable is found to be bad, make sure it is properly connected to the RS232 connector cable and gender changer. If, after running the Modem Cable Test a second time, the prompt still reads BAD, return the BCR to intermediate direct support.

(67) Press BCR OFF.

(68) Disconnect interface modem cable from RS232 connector cable. Detach gender changer and diagnostic plug from other end of modem cable.

(69) Press BCR ON.
Prompt: MODEM CABLE XXXX
(GOOD OR BAD)

(70) Press ENTER.
Prompt: 2 MODEM CABLE
TEST

(71) Press down arrow key until display reads:
Prompt: 3 NULL MODEM
TEST

(72) Press ENTER.
Prompt: ATTCH NULL MODEM
PRESS ENTER

(73) Press BCR OFF.

(74) Connect one end of null modem interface cable to RS232 connector cable. Attach gender changer and diagnostic plug to other end. Hand tighten screws.

(75) Press BCR ON.
Prompt: ATTCH NULL MODEM
PRESS ENTER

(76) Press ENTER.
Prompt: SWAP CABLE ENDS
PRESS ENTER

(77) Press BCR OFF. Swap the end of the null modem interface cable connected to the RS232 connector cable with the end connected to the gender changer. Hand tighten screws.

(78) Press BCR ON.
Prompt: SWAP CABLE ENDS
PRESS ENTER

(79) Press ENTER.
Prompt: NULL MODEM XXXX
(GOOD OR BAD)

NOTE

If the null modem interface cable is found to be bad, make sure it is properly connected to the RS232 connector cable and gender changer. If, after running the Null Modem Test a second time, the prompt still reads BAD, return the BCR to intermediate direct support.

(80) Press BCR OFF.

(81) Disconnect null modem interface cable from RS232 connector cable. Detach gender changer and diagnostic plug from other end of null modem interface cable.

(82) Press BCR ON.
Prompt: NULL MODEM XXXX
(GOOD OR BAD)

(83) Press ENTER.
Prompt: 3 NULL MODEM
TEST

(84) Press down arrow key until display reads:
Prompt: 4 PRNTR CABLE
TEST

(85) Press ENTER.
Prompt: ATTCH PRINTER
CBLE PRESS ENTER

(86) Press BCR OFF.

(87) Connect one end of interface printer cable to RS232 connector cable. Attach gender changer and diagnostic plug to other end of interface printer cable. Hand tighten screws.

(88) Press BCR ON.
Prompt: ATTCH PRINTER
CABLE PRESS ENTER

(89) Press ENTER.
Prompt: SWAP CABLE ENDS
PRESS ENTER

(90) Press BCR OFF. Swap cable following the same procedure found in steps (76) and (77).

(91) Press BCR ON.
Prompt: SWAP CABLE ENDS
PRESS ENTER

(92) Press ENTER.
Prompt: PRNTR CABLE XXXX
(GOOD OR BAD)

(93) Press BCR OFF.

(94) Disconnect interface printer cable from RS232 connector cable. Disconnect RS232 connector cable from the BCR. Detach gender changer and diagnostic plug from other end of interface printer cable. Replace rubber cap over BCR RS232 connector port.

(95) Press BCR ON.
Prompt: PRNTR CABLE XXXX
(GOOD/BAD)

NOTE

If the printer cable is found to be bad, make sure it is properly connected to the RS232 connector cable and gender changer. If, after running the Printer Cable Test a second time, the prompt still reads BAD, return the BCR to intermediate direct support.

(96) Press ENTER.
Prompt: 4 PRINTER CABLE
TEST

(97) Press CLEAR once.
Prompt: 7 RS232 TEST

(98) Press down arrow key until prompt reads:
Prompt: 8SCNNR PORT TEST

(99) Press ENTER.
Prompt: SCNNR PORT TEST
PRESS ENTER

(100) Press ENTER.
Prompt: 1 LOOP-BACK TEST

(101) Press down arrow key to observe the Scanner Port Test Menu which includes:
1 LOOP-BACK TEST
2 LASER SCNNR
TEST
3 CNTCT SCNNR
TEST

(102) Press down arrow key until prompt reads:
Prompt: 1 LOOP-BACK TEST

(103) Press ENTER.
Prompt: ATTCH DIAGNOSTIC
PLUG PRESS ENTER

(104) Press BCR OFF. Remove rubber cap from BCR scanner port. Attach diagnostic plug to scanner port.

(105) Press BCR ON.
Prompt: ATTCH DIAGNOSTIC
PLUG PRESS ENTER

(106) Press ENTER.
Prompt: SCNNR PORT XXXX
(GOOD OR BAD)

NOTE

If the scanner port is found to be bad, make sure the diagnostic plug is properly connected to the scanner port. If, after running the Scanner Port Test a second time, the prompt still reads BAD, return the BCR to intermediate direct support.

(107) Press BCR OFF and disconnect diagnostic plug. Then press BCR ON.
Prompt: SCNNR PORT XXXX
(GOOD OR BAD)

(108) Press ENTER.
Prompt: 1 LOOP-BACK TEST

(109) Press down arrow key.
Prompt: 2 LASER SCNNR
TEST

(110) Press ENTER.
Prompt: ATTACH LASER
PRESS ENTER

(111) Press BCR OFF and attach laser scanner to BCR scanner port. Press BCR ON.
Prompt: ATTACH LASER
PRESS ENTER

(112) Press ENTER.
Prompt: PRESS ENTER
WHEN DONE

(113) Point laser scanner at a bar code label or white piece of paper.

(114) Aim laser scanner at bar code label. Pull trigger to the first position. Observe that the stationary spot of light comes on. Pull trigger to the second position. Observe that the DECODE LED illuminates.

(115) Press ENTER.
Prompt: LASER SCNNR XXXX
(GOOD OR BAD)

NOTE

If the laser scanner is found to be bad, make sure the cable is attached to the scanner port properly. If, after running the Laser Scanner Test a second time, the prompt still reads BAD, return the BCR to intermediate direct support.

(116) Press BCR OFF and disconnect the laser scanner. Press BCR ON.
Prompt: LASER SCNNR XXXX
(GOOD OR BAD)

(117) Press ENTER.
Prompt: 2 LASER SCNNR
TEST

(118) Press down arrow.
Prompt: 3 CNTCT SCNNR
TEST

(119) Press ENTER.
Prompt: ATTCH CNTCT
PRESS ENTER

(120) Press BCR OFF. Attach contact wand scanner. Press BCR ON.
Prompt: ATTACH CNTCT
PRESS ENTER

(121) Press ENTER.
Prompt: PRESS ENTER
WHEN DONE

(122) Press ENTER.
Prompt: CNTCT SCNNR XXXX
(GOOD OR BAD)

NOTE

If the contact scanner is found to be bad, make sure the cable is attached to the scanner port properly. If, after running the Contact Scanner Test a second time, the prompt still reads BAD, return the BCR to intermediate direct support.

(123) Press BCR OFF. Disconnect contact wand scanner, and replace rubber cap over BCR scanner port.

(124) Press BCR ON.
Prompt: CNTCT SCNNR XXXX
(GOOD OR BAD)

(125) Press ENTER.
Prompt: 3 CNTCT SCNNR
TEST

(126) Press CLEAR.
Prompt: 8SCNNR PORT TEST

(127) Press CLEAR.
Prompt: 2 MANUAL MODE

(128) Press CLEAR.
Prompt: M-1800-00-X
$ BIT TEST

(129) Press BCR OFF.

3-3 TROUBLESHOOTING.

a. BCR. For troubleshooting guidelines for the BCR, refer to table 3-2.

b. Laser Scanner and Contact Scanner. For troubleshooting guidelines for the laser scanner and contact scanner, refer to table 3-3.

c. Error and Status Messages. When using the BCR, messages may be displayed indicating errors or conditions that need to be corrected. Each message is accompanied by an audible alarm (beep) to alert you to the problem. After the alarm has sounded, the BCR will return to its prior status. Table 3-4 lists typical error and status messages.

NOTE

The actual wording of the error or status message displayed will depend on the application program in your BCR.

Table 3-2. BCR Troubleshooting

Symptom	Possible Cause	Recommended Action
When power is turned on, the display is blank and the BCR will not operate.	Improperly inserted, missing, or dead batteries. CAM is installed in the wrong direction.	Recheck position of batteries. Replace the primary batteries. Check the CAM. If it is installed incorrectly, remove it and one of the primary batteries. Reinstall only the battery and turn the unit back on. "PROG ERR" will be displayed. After the display goes blank, install the CAM correctly
Keyboard is not working.	Malfunctioning CAM.	CAM must be replaced.
Display is too weak.	Viewing angle needs adjusting.	Adjust viewing angle by pressing the FUNC key and then the down arrow or up arrow to lighten or darken. Press the FUNC key and the appropriate arrow key up to eight times to produce desired lightening or darkening of display.
BCR does not transmit data.	Interface bar code reader cable (RS232).	Run the RS232 Port Test portion of the BIT.
Wrong information is displayed when data is entered from the keyboard.	Keyboard.	Run the Display Test portion of the BIT Run the Keyboard Test portion of the BIT.
Displayed characters are blinking.	Bar code reader batteries.	Run the Display Test and Battery Test portions of the BIT.
Application program does not run.	CAM.	Run the CAM Test portion of the BIT.
BCR is displaying inaccurate time and/or date information.	Real-time clock.	Run the Clock Test portion of the BIT.

Table 3-3. Laser Scanner and Contact Scanner Troubleshooting

Symptom	Possible Cause	Recommended Action
When power is turned on, the scanner does not operate.	BCR has low or improperly inserted batteries.	Recheck position of batteries. Replace the primary batteries.
	Interfacing cables are not properly attached.	Attach cables properly.
	Defective scanner.	Perform BIT.
Scanner is operational but does not decode a bar code symbol.	Dirt or debris on aperture windows is preventing decoding.	Clean the aperture window with a lint-free cloth moistened with glass cleaner. Wipe clean with a dry, lint-free cloth.
	Bar code symbol is of poor quality.	Generate a new bar code symbol.
	Dirt or debris on bar/code symbol is preventing scanning.	Wipe the bar code symbol with a clean, dry lint-free cloth.
	Scanner port is nonfunctional.	Run the Scanner Port portion of the BIT.
	Laser scanner is malfunctioning.	Run the Laser Scanner portion of the BIT.
	Contact scanner is malfunctioning.	Run the Contact Scanner portion of the BIT.

Table 3-4. Typical BCR Error Messages

Message	Meaning
LOW BATT 1/ LOW BATT 2	10 AA alkaline/nickel-cadmium batteries are low and should be replaced as soon as possible.
REPLACE BATT	10 AA alkaline/nickel-cadmium batteries must be replaced before the unit can be used. Memory will be held for 12 additional hours in this state and during battery replacement.
DOUBLE KEY ERROR	Two or more keys were pressed at the same time.
MUST HIT ENTER	The ENTER key must be pressed.
MUST FILL FIELD	The entire field (display) must be filled before entering.
ILLEGAL KEY	An incorrect key was pressed during data entry.
SYS ERR XX YYYY	X is a number from 1 to 16; YYYY is the address where the error occurred. If this message is displayed, perform the BIT Test. If this message occurs during the BIT Test "cold start" the BCR. If the message occurs while running STAMIS, refer to STAMIS Operation Manual.
BAD PROM	This indicates that the BCR will not accept the CAM or the CAM has been inserted incorrectly (with its notched end positioned toward the bottom of the unit).

3-4 PARTS REPLACEMENT. The BCR contains these replaceable parts: 10 AA alkaline/nickel-cadmium batteries, 2 lithium batteries, and a CAM.

a. AA Alkaline/Nickel Cadmium Batteries. When the BCR display reads LOW BATT you should replace the alkaline/nickel-cadmium batteries as soon as possible. To replace the batteries, proceed as follows.

CAUTION

Ensure that the BCR is off before replacing batteries. Make sure that the BCR is disconnected from other equipment.

(1) Press OFF key on BCR.

(2) Remove rear cover by unscrewing the two D-rings in a counterclockwise direction.

(3) Remove all old batteries one at a time. See figure 2-3 for location of alkaline batteries.

(4) Install each new battery in direction indicated on inside of BCR.

(5) Replace all 10 batteries. Never replace only part of set.

(6) Replace rear cover, screwing the two D-rings in a clockwise direction until they are secure.

(7) Press BCR ON to ensure unit is working.

b. Lithium Battery. The lithium battery is a 3-volt coin cell battery located in a battery holder next to the alkaline/nickel-cadmium batteries. See figure 2-3. To replace a used lithium battery, proceed as follows

WARNING

Do not store lithium batteries with other hazardous materials. Keep them away from open flame or heat.

CAUTION

Do not store batteries in unused equipment for more than 30 days.

Ensure that the BCR is off before replacing the lithium battery. Make sure that the BCR is disconnected from other equipment.

NOTE

If the primary batteries are removed for a significant length of time, the lithium battery should also be removed.

The life of the lithium battery is user dependent. It has a life expectancy of 300 hours. It is recommended that the lithium battery be changed every 300 hours or every 12 months, whichever comes first.

(1) Press OFF key on BCR.

(2) Remove rear cover by unscrewing the two D-rings in a counterclockwise direction.

(3) With your fingers, lift up contact clip just enough for the battery to slip out. See figure 2-3.

(4) Turn BCR over so that lithium battery slides into your hand.

(5) Hold new battery in position with negative (-) face down and positive (+) face up.

(6) At an angle, insert battery under holder's positive contact clip. When the battery is properly installed, the contact clip will snap closed.

(7) Replace rear cover, screwing the two D-rings in a clockwise direction.

c. CAM. To replace a CAM with a new one (for example, if the one currently in the BCR is not functioning properly or if a different application is desired), proceed as follows.

CAUTION

Ensure that the BCR is off before replacing the CAM. Make sure that the BCR is not connected to any other equipment.

(1) Press OFF key on BCR.

(2) Remove rear cover by unscrewing the two D-rings in a counterclockwise motion.

(3) Unlock CAM socket connection by turning locking screw approximately one quarter turn counterclockwise. Do not force screw.

(4) Holding CAM by handle, gently lift it out of socket.

(5) Pick second CAM up by handle and gently insert it into socket with notched end of CAM positioned toward locking screw. See figure 2-4.

(6) With CAM seated in socket, lock contacts by turning locking screw approximately one quarter turn clockwise. Do not try to force screw.

(7) Replace rear cover, screwing the two D-rings in a clockwise direction until they are secure.

(8) Press BCR ON and run EPROM test. (Refer to BIT, paragraph 3-2.)

3-5 BATTERY STORAGE. Batteries contain dangerous chemicals and should be handled with care. When storing lithium batteries, proceed as follows.

WARNING

Do not store lithium batteries with other hazardous materials. Keep them away from open flame or heat.

CAUTION

Do not store batteries in unused equipment for more than 30 days.

a. Contact your local Fire Department for selection and approval of lithium battery storage areas and selection of appropriate fire extinguishing equipment.

b. Store lithium batteries in a cool (i.e., less than 130 °F), dry, well-ventilated area. For bulk storage, use a sprinkler-protected area, and as a second choice store in a noncombustible area.

3-6 PREPARATION FOR SHIPMENT. When shipping the BCR, use the BCR transit case. If the original case has been damaged, order one from intermediate direct support. Prior to shipment, proceed as follows.

a. Be sure BCR has been turned off.

b. Remove lithium battery.

c. Remove batteries and place them in BCR transit case. Maintenance personnel will test these batteries to ensure that they are not the source of the problem.

d. Remove CAM if present and replace in CAM holder. Do not ship CAM.

e. Disconnect all cables from BCR.

f. Pack all contents in BCR transit case. Refer to Appendix F RPSTL.

CHAPTER 4
INTERMEDIATE DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

4-1 PREVENTIVE MAINTENANCE. Preventive maintenance of the BCR, laser scanner, and contact scanner consists of general precautions and cleaning instructions. Refer to the preventive maintenance procedures in paragraph 3-1.

4-2 CORRECTIVE MAINTENANCE. When malfunctioning equipment has been turned in, proceed as follows:

a. Inspect the BCR transit case to ensure that these contents are included:

1 Bar Code Reader (BCR)
1 Laser Scanner
1 Contact Scanner
1 Bar Code Reader Holster
1 Laser Scanner Holster
1 Holster Strap
1 Holster Belt
1 Interface Bar Code Reader Cable (RS232 connector cable)
1 Bar Code Reader Diagnostic Plug
1 Null Modem Interface Cable
20 AA Alkaline Batteries
2 Lithium Batteries
1 Gender Changer
1 TM 11-7021-210-13&P
1 Packing List

b. BCR Fault Isolation. You can test a malfunctioning BCR in two ways: the BIT and the MLD. Test procedures are described below.

NOTE

Be sure that the BCR is not connected to any other equipment when testing begins.

If the BIT or MLD does not function properly, return the BCR to the contractor depot.

(1) BIT. When a malfunctioning BCR is received, perform the BIT. (Refer to paragraph 3-2.) If any malfunction is indicated by the display, take the action suggested in the BCR troubleshooting guide, table 3-1. If the BCR passes the BIT, then the fault is external to the BCR and you must use the MLD to find the problem.

NOTE

Do not use the MLD unless the BCR has passed the BIT.

(2) MLD. To perform the MLD, proceed as follows.

CAUTION

Ensure that the BCR is off before inserting MLD CAM in the BCR.

(a) Insert MLD CAM in BCR. Refer to paragraph 3-4 c.

(b) Press BCR ON key.
Prompt: LOADING
Prompt: MODEM TEST

(c) Press down arrow key until prompt reads:
LASER SCNNR TEST

(d) Press ENTER.
Prompt: LASER SCNNR TEST
PRESS ENTER

(e) Press ENTER.
Prompt: ATTACH LASER
PRESS ENTER

(f) Press BCR OFF key.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Do not force the laser scanner connector cable into the BCR scanner port. Connecting improperly can damage the connector pins.

(g) Remove rubber cap from BCR scanner port. Connect laser scanner to BCR scanner port by carefully fitting the connector pins into the appropriate holes. See figure 2-5.

(h) Press BCR ON key.
Prompt: ATTACH LASER
PRESS ENTER

(i) Press ENTER.
Prompt: SCAN LABEL

(j) Scan a 3 of 9 or Codabar label, making sure beam is on.
Prompt: CODE 3 OF 9
XXXXXXXX
or
CODABAR
XXXXXXXX

NOTE

Line 1 displays the type of label scanned. Line 2 is the decoded information. Failure to scan indicates a fault in the scanner.

(k) When laser scanner test is complete, press BCR OFF key.

CAUTION

Do not pull the laser scanner connector cable off the BCR scanner port without squeezing the connector. Improper removal can damage the connector.

(l) To disconnect laser scanner from BCR, squeeze connector to loosen it at BCR scanner port. Carefully pull to disconnect.

(m) Press BCR ON key.
Prompt: CODE 3 OF 9
XXXXXXXX
or
CODABAR
XXXXXXXX

(n) Press CLEAR.
Prompt: LASER SCNNR TEST

(o) Press down arrow key until prompt reads:
CNTCT SCNNR TEST

(p) Press ENTER.
Prompt: CNTCT SCNNR TEST
PRESS ENTER

(q) Press ENTER.
Prompt: ATTACH SCANNER
PRESS ENTER

(r) Press BCR OFF key.

CAUTION

Prior to connecting, check cables for bent or broken pins and frayed coverings.

Do not force the contact scanner connector cable into the BCR scanner port. Connecting improperly can damage the connector pins.

(s) Remove rubber cap from BCR scanner port. Connect contact scanner to BCR scanner port by carefully fitting the connector pins into the appropriate holes. See figure 2-5.

(t) Press BCR ON key.
Prompt: ATTACH LASER
PRESS ENTER

(u) Press ENTER.
Prompt: SCAN LABEL

(v) Scan a 3 of 9 or Codabar label.
Prompt: CODE 3 OF 9
XXXXXXXX
or
CODABAR
XXXXXXXX

NOTE

Line 1 displays the type of label scanned. Line 2 is the decoded information. Failure to scan indicates a fault in the scanner.

(w) When Contact Scanner Test is complete, press BCR OFF key.

CAUTION

Do not pull the contact scanner connector cable off of the BCR port without squeezing the connector. Improper removal can damage the connector.

(x) To disconnect contact scanner from BCR, squeeze connector to loosen it at BCR port. Carefully pull to disconnect. Replace rubber cap over BCR scanner port.

(y) Press BCR ON key.
Press CLEAR.
Prompt: CNTCT SCNNR TEST

(z) When you are finished with BCR MLD Test, press down arrow until prompt reads:
MODEM TEST

(aa) Press BCR OFF key.

4-3 BATTERY STORAGE. Batteries contain dangerous chemicals and should be handled with care. When storing lithium batteries, proceed as follows.

WARNING

Do not store lithium batteries with other hazardous materials.
Keep away from open flame or heat.

CAUTION

Do not store batteries in unused equipment for more than 30 days.

a. Contact your local Fire Department for selection and approval of lithium battery storage areas and selection of appropriate fire extinguishing equipment.

b. Store lithium batteries in a cool (i.e., less than 130 °F), dry, well-ventilated area. For bulk storage, use a sprinkler-protected area, and as a second choice store in a noncombustible area.

4-4 PREPARATION FOR SHIPMENT. When shipping the BCR, use the BCR transit case. Prior to shipment, proceed as follows.

a. Be sure BCR has been turned off.

b. Remove all alkaline/nickel-cadmium and lithium batteries. Do not ship these batteries.

c. Remove MLD CAM and place in CAM holder. Do not ship the MLD CAM.

d. Disconnect all cables from BCR.

e. Pack all contents except the batteries and CAM in BCR transit case. Refer to Appendix F RPSTL.

APPENDIX A
REFERENCES

A-1. INTRODUCTION

This appendix lists all forms, field manuals and technical manuals referenced in, or required for use with, this technical manual.

A-2. FORMS

No forms are required for use with the bar code reader.

A-3. TECHNICAL MANUALS

Procedures for Destruction of Electronic Materiel to Prevent Enemy Use (Electronics Command)	TM 750-244-2

A-4. MISCELLANEOUS PUBLICATIONS

The Army Maintenance Management System	DA Pam 738-750
Consolidated Index of Army Publications and Blank Forms	DA Pam 25-30

A-5. MANUALS

First Aid for Soldiers	FM 21-11

APPENDIX B
MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-1. General

This appendix provides a summary of the maintenance operations for the bar code reader group CY-8537/G. It authorizes levels of maintenance for specific maintenance functions on repairable items and components, and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

B-2. Maintenance Function

Maintenance functions will be limited to and defined as follows:

a. Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

b. Test. To verify serviceability and to detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. Service. Operations required periodically to keep an item in proper operating condition; i.e., to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

d. Adjust. To maintain, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to the specified parameters.

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test-measuring and diagnostic equipments used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. Install. The act of emplacing, seating, or fixing into position an item, part, module (component or assembly) in a manner to allow the proper functioning of the equipment or system.

h. Replace. The act of substituting a serviceable like-type part, subassembly,or module (component or assembly) for an unserviceable counterpart.

i. Repair. The application of maintenance services (inspect, test, service, adjust, align, calibrate, or replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining, or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. Overhaul. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition, as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours, miles, etc.) considered in classifying Army equipments/components.

B-3. Column Entries

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assemblies, subassemblies, and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the noun names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in column 2. When items are listed without maintenance functions, it is solely for the purpose of having the group numbers in the MAC and RPSTL coincide.

d. Column 4, Maintenance Level. Column 4 specifies, by the listing of a "work time" figure in the appropriate subcolumn(s), the lowest level of maintenance authorized to perform the functions listed in column 3. This figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function varies at different maintenance categories, appropriate "work time" figures will be shown for each level. The number of task-hours specified by the "work time" figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. Subcolumns of Column 4 are as follows:

UNIT
C - Operator/Crew
O - Organizational

INTERMEDIATE
F - Direct Support
H - General Support

DEPOT
D - Depot

e. Column 5, Tools and Equipment. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. Column 6, Remarks. Column 6 contains an alphabetic code that leads to the remark in Section IV, Remarks, which is pertinent to the item opposite the particular code.

B-4 Tools and Test Equipment Requirements (Section III)

a. Tools or Test Equipment Reference Code. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool or test equipment for the maintenance functions.

b. Maintenance Level. The codes in this column indicate the maintenance level allocated the tools or test equipment.

c. Nomenclature. This column lists the noun name and nomenclature of the tools and test equipment required to perform the maintenance functions.

d. National/NATO Stock Number. This column lists the National/NATO stock number of the specific tool or test equipment.

e. Tool Number. This column lists the manufacturer's part number of the tool followed by the Federal Supply Code for manufacturers (5-digit) in parentheses.

B-5 Remarks (Section IV)

a. Reference Code. This code refers to the appropriate item in Section II, Column 6.

b. Remarks. This column provides the required explanatory information necessary to clarify items appearing in Section II.

SECTION II. MAINTENANCE ALLOCATION CHART
FOR
LOGMARS (T) BAR CODE READER (BCR) GROUP (CY-8537/G)

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE LEVEL					(5) TOOLS AND EQPT	(6) REMARKS
			UNIT		INTERMEDIATE		DEPOT		
			C	O	F	H	D		
00	BAR CODE READER GROUP CY-8537/G	INSPECT		0.1					A, B
		TEST		0.1					P
		TEST			0.5			1,2,3,4,5,6	J
		SERVICE		0.1					D, E, M
		REPAIR		0.1					F, G, H, N
01	BAR CODE READER CP-1886/G	INSPECT		0 1					A
		INSTALL		0.1				7	Q
		TEST			0.1			1,2,3,4,5,6	C
		SERVICE		0.1					I
		REPLACE			0 5				O
		REPAIR		0.1					K
		REPAIR					0.5		L
02	SCANNER, LASER	INSPECT		0 1					A
		TEST			0.1			1, 3, 6	C
		SERVICE		0.1					I
		REPLACE			0 5				O
		REPAIR					0 5		L

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS FOR LOGMARS (T) BAR CODE READER (BCR) GROUP (CY-8537/G)

TOOL OR TEST EQUIPMENT REF CODE	MAINTENANCE LEVEL	NOMENCLATURE	NATIONAL/NATO STOCK NUMBER	TOOL NUMBER
1	F	BAR CODE READER GROUP		
2	F	BAR CODE READER DIAGNOSTIC PLUG P/O BCR GROUP		
3	F	MAINTENANCE LEVEL DIAGNOSTIC (MLD) CAM		
4	F	INTERFACE BAR CODE READER CABLE (RS232) P/O BCR GROUP		
5	F	GENDER CHANGER P/O BCR GROUP		
6	F	TK-17 TOOL KIT		
7	O	SCREWDRIVER	5120-00-236-2140	

SECTION IV. REMARKS
FOR
LOGMARS (T) BAR CODE READER (BCR) GROUP (CY-8537/G)

REFERENCE CODE	REMARKS
A	VISUALLY INSPECT FOR BROKEN, DAMAGED EQUIPMENT.
B	CHECK PRESSURE RELIEF VALVE ON TRANSIT CASE.
C	TEST BY PERFORMING BUILT-IN TEST AND MAINTENANCE LEVEL DIAGNOSTIC (MLD) TEST
D	SERVICE BY CLEANING EXTERIOR OF TRANSIT CASE.
E	SERVICE BY CLEANING NONMETAL PORTIONS OF CABLES.
F	REPLACE DAMAGED CABLES, DIAGNOSTIC PLUGS. SEE NOTE 1.
G	REPLACE CONTACT SCANNER, BAR CODE READER, LASER SCANNER. SEE NOTE 1
H	REPLACE BAR CODE READER HOLSTER AND/OR LASER SCANNER HOLSTER.
I	SERVICE BY CLEANING EXTERIOR
J	TEST INTERFACE BAR CODE READER CABLE (RS232) WITH BAR CODE READER DIAGNOSTIC PLUG. TEST NULL MODEM INTERFACE CABLE WITH RS232 CABLE, DIAGNOSTIC PLUG AND GENDER CHANGER. TEST CONTACT SCANNER WITH BAR CODE READER USING BUILT-IN TEST (BIT) AND MAINTENANCE LEVEL DIAGNOSTIC (MLD) CAM.
K	REPLACE AA ALKALINE BATTERIES, LITHIUM BATTERIES, AND/OR NICKEL CADMIUM BATTERIES
L	REPAIR PERFORMED BY CONTRACTOR DEPOT
M	SERVICE BY CLEANING EXTERIOR OF CONTACT SCANNER.
N	REPLACE TRANSIT CASE.
O	REPLACEMENT INCLUDES SCREENING DEFECTIVE COMPONENTS. SPECIAL HANDLING REQUIRED FOR CONTRACTOR REPAIRABLE ITEMS
P	TEST USING BUILT-IN TEST (BIT)
Q	INSTALL CAM

NOTE 1. REPLACED COMPONENT IS PACKED UP WITH ALL OTHER ITEMS IN THE BCR TRANSIT CASE AND RETURNED TO INTERMEDIATE DIRECT SUPPORT (IDS) FOR EXCHANGE.

APPENDIX C
COMPONENTS OF END ITEM AND BASIC ISSUE ITEMS LISTS

SECTION I. INTRODUCTION

C-1. SCOPE

This appendix lists components of end item and basic issue items for the bar code reader to help you inventory items required for safe and efficient operation.

C-2. GENERAL

The Components of End Item and Basic Issue Items Lists are divided into the following sections.

a. Section II. Components of End Item. This listing is for informational purposes only, and is not authority to requisition replacements. These items are part of the end item, but are removed and separately packaged for transportation or shipment. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Illustrations are furnished to assist you in identifying the items.

b. Section III. Basic Issue Items. These are the minimum essential items required to place the bar code reader in operation, to operate it, and to perform emergency repairs. Although shipped separately packaged, BII must be with the bar code reader during operations and whenever it is transferred between property accounts. The illustrations will assist you with hard to identify items. This manual is your authority to request/requisition replacement BII, based on TOE/MTOE authorization of the end item.

C-3. EXPLANATION OF COLUMNS

The following provides an explanation of columns found in the tabular listings:

a. Column (1) - Illustration Number (Illus Number). This column indicates the number of the illustration in which the item is shown.

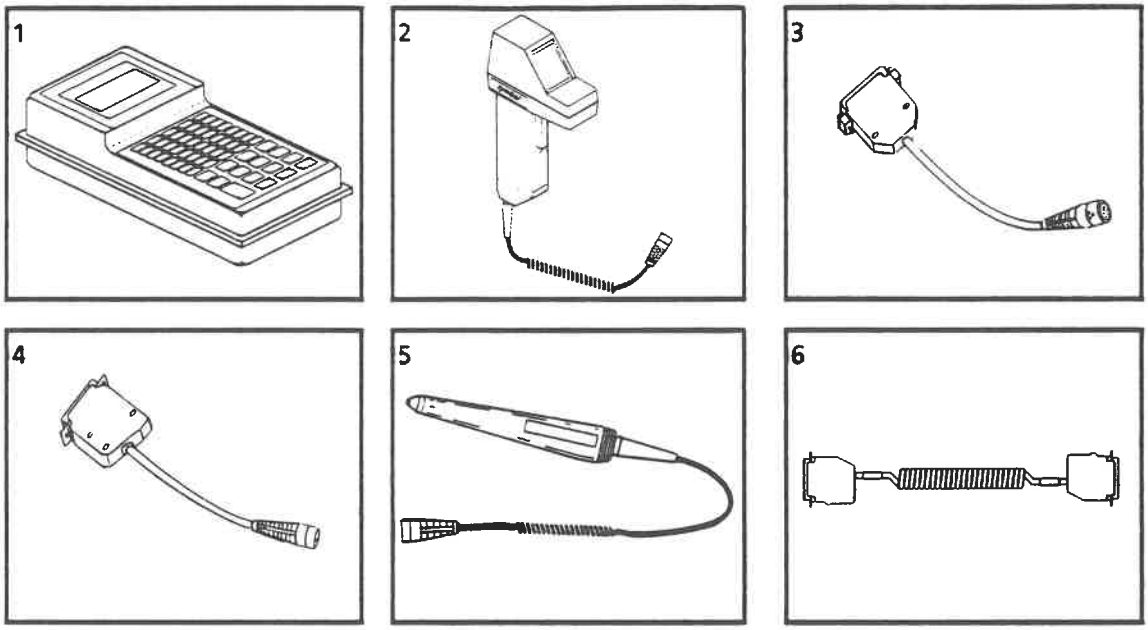
b. Column (2) - National Stock Number. Indicates the National stock number assigned to the item and will be used for requisitioning purposes.

c. Column (3) - Description. Indicates the Federal item name and, if required, a minimum description to identify and locate the item. The last line for each item indicates the FSCM (in parentheses) followed by the part number.

d. Column (4) - Unit of Measure (U/M). Indicates the measure used in performing the actual operational/maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr).

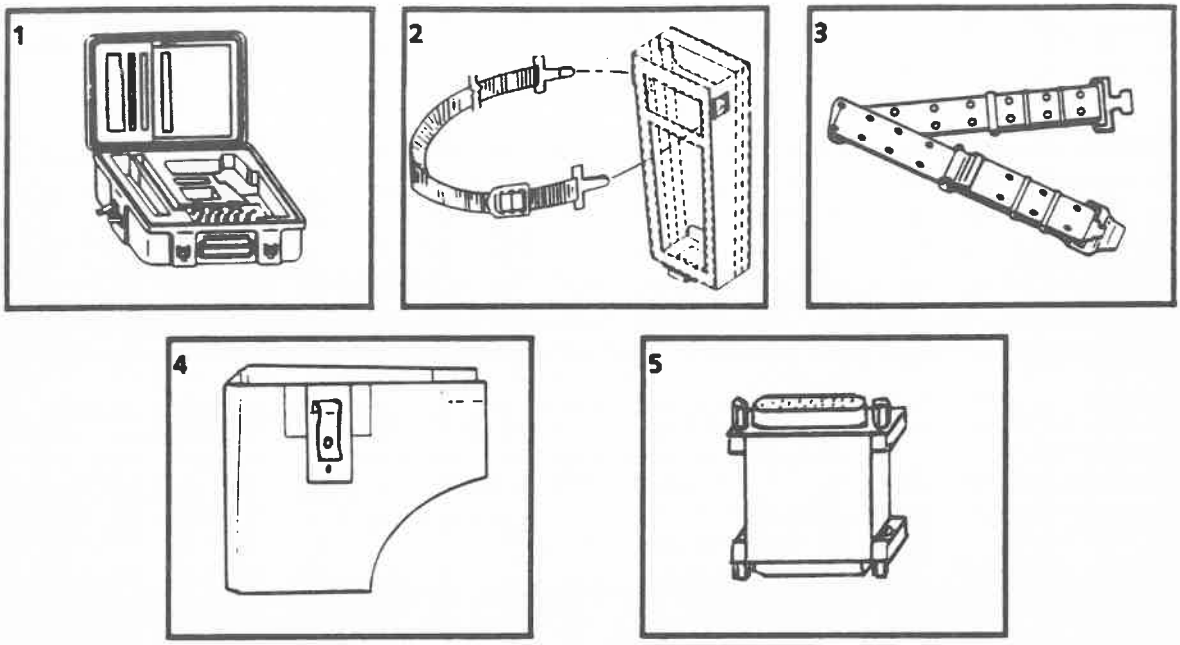
e. Column (5) - Quantity required (Qty rqr). Indicates the quantity of the item authorized to be used with/on the equipment.

SECTION II. COMPONENTS OF END ITEM



(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	Usable On Code	(4) U/M	(5) Qty rqr
1		MICROPROCESSOR, CP-1886/G (in BCR Transit Case) (45637) 53527-03-00	HR2	EA	1
2		SCANNER, LASER (in BCR Transit Case) (64928) LS-8100-E000A	HR2	EA	1
3		CABLE, INTERFACE RS232 (in BCR Transit Case) (45637) 53420-00-00	HR2	EA	1
4		PLUG, DIAGNOSTIC (in BCR Transit Case) (45637) 53781-00-00	HR2	EA	1
5		SCANNER, CONTACT (in BCR Transit Case) (28380) QBCS-6396	HR2	EA	1
6		CABLE, NULL MODEM INTERFACE (in BCR Transit Case) (64928) 21-02799-01	HR2	EA	1

SECTION II. COMPONENTS OF END ITEM



SECTION III. BASIC ISSUE ITEMS

(1) Illus Number	(2) National Stock Number	(3) Description FSCM and Part Number	Usable On Code	(4) U/M	(5) Qty rqr
1		CASE, TRANSIT BCR (19178) 46-37054	HR2	EA	1
2		HOLSTER, BCR (in BCR transit case) (45637) 53981-00-00	HR2	EA	1
3		BELT, HOLSTER (in BCR transit case) (45637) 54210-00-00	HR2	EA	1
4		HOLSTER, LASER SCANNER (in BCR transit case) (45637) 53982-00-00	HR2	EA	1
5		CHANGER, GENDER (in BCR transit case) (49557) DB-25-FF	HR2	EA	1

APPENDIX D
ADDITIONAL AUTHORIZATION LIST

SECTION I. INTRODUCTION

D-1. SCOPE

This appendix lists additional items you are authorized for the support of the bar code reader.

D-2. GENERAL

This list identifies items that do not have to accompany the bar code reader and that do not have to be turned in with it. These items are all authorized to you by CTA, MTOE, TDA, or JTA.

D-3. EXPLANATION OF LISTING

National stock numbers, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. The items are listed in alphabetical sequence by item name under the type document (i.e., CTA, MTOE, TDA, or JTA) which authorizes the item(s) to you.

SECTION II. ADDITIONAL AUTHORIZATION LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION FSCM & PART NUMBER	USABLE ON CODE	(3) U/M	(4) QTY AUTH
	MTOE AUTHORIZED ITEMS			
	CTA AUTHORIZED ITEMS			
	CHARGER, AA BATTERY (07995) NC2100U	HR2	EA	1
6140-00-449-6001	BATTERY, NICKEL CADMIUM (72278) CH500H	HR2	EA	10
	BATTERY, LITHIUM 3V (09569) CR2016	HR2	EA	2

APPENDIX E
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

SECTION I. INTRODUCTION

E-1. SCOPE

This appendix lists expendable supplies and material you will need to operate and maintain the BCR, laser scanner, and contact scanner. These items are authorized to you by CTA 50-970, Expendable Items (Except Medical, Class V, Repair Parts, and Heraldic Items).

E-2. EXPLANATION OF COLUMNS

a. Column (1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Use cleaning compound, item 5, App. D").

b. Column (2) - Level. This column identifies the lowest level of maintenance that requires the listed item.

C - Operator/Crew
O - Organizational Maintenance
F - Direct Support Maintenance
H - General Support Maintenance

c. Column (3) - National Stock Number. This is the National stock number assigned to the item; use it to request or requisition the item.

d. Column (4) - Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturers (FSCM) in parentheses followed by the part number.

e. Column (5) - Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in, pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

SECTION II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	O	5120-00-236-2140	Screwdriver	EA
2	O	6135-00-985-7845	Battery, Alkaline AA	EA

APPENDIX F
REPAIR PARTS AND SPECIAL TOOLS LIST

SECTION I. INTRODUCTION

F-1. SCOPE

This appendix lists and authorizes spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of organizational and direct support maintenance of the bar code reader. It authorizes the requisitioning, issue, and disposition of spares, repair parts and special tools as indicated by the source, maintenance and recoverability (SMR) codes.

F-2. GENERAL

This Repair Parts and Special Tools List is divided into the following sections:

a. Section II. Repair Parts List. A list of spares and repair parts authorized by this RPSTL for use in the performance of maintenance. The list also includes parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending numeric sequence, with the parts in each group listed in ascending figure and item number sequence. Bulk materials are listed in item name sequence. Repair parts kits are listed separately in their own functional group within Section II. Repair parts for repairable special tools are also listed in this section. Items listed are shown on the associated illustration(s)/figure(s).

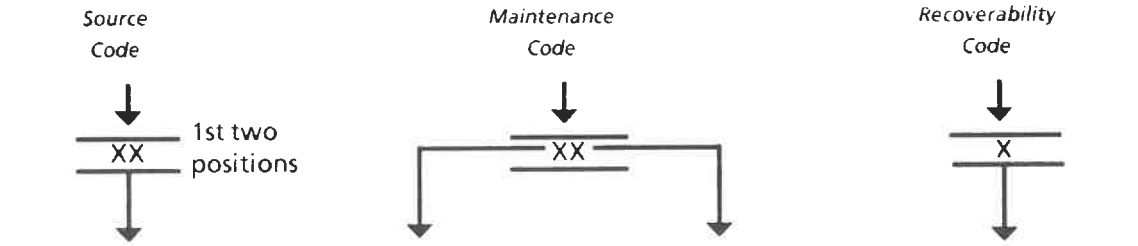
b. Section III. Special Tools List. Not applicable. A list of special tools, special TMDE, and other special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in column (5) for the performance of maintenance.

c. *Section IV. National Stock Number and Part Number Index.* A list, in National item identification number (NIIN) sequence, of all National stock numbered items appearing in the listing, followed by a list in alphameric sequence of all part numbers appearing in the listings. National stock numbers and part numbers are cross-referenced to each illustration figure and item number appearance.

F-3. EXPLANATION OF COLUMNS (SECTIONS II AND III)

a. *Item No. (Column (1)).* Indicates the number used to identify items called out in the illustration.

b. *SMR Code (Column (2)).* The source, maintenance, and recoverability (SMR) code is a five-position code containing supply/requisitioning information, maintenance category authorization criteria, and disposition instruction, as shown in the following breakout:



NOTE

Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

(1) *Source Code.* The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

Code	*Explanation*
PA PB PC PD PE PF PG	Stocked items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the category indicated by the code entered in the third position of the SMR code. **NOTE** Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance category indicated in the third position of the SMR code. The complete kit must be requisitioned and used.

Code	*Explanation*
MO Made at org/ AVUM category MF- Made at DS/ AVUM category MH- Made at GS category ML- Made at Specialized Repair Activity (SRA) MD- Made at Depot	Items with these codes are not to be requested/ requisitioned individually. They must be made from bulk material which is identified by the part number in the description and usable on code (UOC) column and listed in the Bulk Material group of the repair parts list. If the item is authorized to you by the third position code of the SMR code, but the source code indicates it is made at a higher category, order the item from the higher category of maintenance.
AO- Assembled by org/ AVUM category AF- Assembled by DS/ AVIM category AH- Assembled by GS category AL- Assembled by SRA AD- Assembled by Depot	Items with these codes are not to be requested/ requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the category of maintenance indicated by the source code. If the third position code of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher category, order the item from the higher category of maintenance.

XA - Do not requisition an "XA" coded item. Order its next higher assembly.
XB - If an "XB" item is not available from salvage, order it using the FSCM and part number given.
XC - Installation drawing, diagram, instruction sheet, field service drawing, that is identified by manufacturer's part number.
XD - Item is not stocked. Order an "XD"-coded item through normal supply channels using the FSCM and part number given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes, except for those source coded "XA" or those aircraft support items restricted by requirements of AR 750-1.

(2) *Maintenance Code*. Maintenance codes tell you the category of maintenance authorized to USE and REPAIR support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

(a) The maintenance code entered in the third position tells you the lowest maintenance category authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to one of the following categories of maintenance.

Code *Application/Explanation*

C — Crew or operator maintenance done within organizational or aviation maintenance

O — Organizational or aviation unit category can remove, replace, and use the item.

F — Direct support or aviation intermediate category can remove, replace, and use the item.

H — General support category can remove, replace, and use the item.

L — Specialized repair activity can remove, replace, and use the item

D — Depot category can remove, replace, and use the item.

(b) The maintenance code entered in the fourth position tells whether or not the item is to be repaired and identifies the lowest maintenance category with the capability to do complete repair (i.e., perform all authorized repair functions. This position will contain one of the following maintenance codes:

NOTE

Some limited repair may be done on the item at a lower category of maintenance, if authorized by the Maintenance Allocation Chart (MAC) and SMR codes.

Code *Application/Explanation*

O — Organizational or aviation unit is the lowest category that can do complete repair of the item.

F — Direct support or aviation intermediate is the lowest category that can do complete repair of the item

H — General support is the lowest category that can do complete repair of the item.

L — Specialized repair activity (designate the specialized repair activity) is the lowest category that can do complete repair of the item.

D — Depot is the lowest category that can do complete repair of the item.

Z — Nonreparable. No repair is authorized.

B — No repair is authorized. (No parts or special tools are authorized for the maintenance of a "B" coded item.) However, the item may be reconditioned by adjusting, lubricating, etc., at the user category.

(3) *Recoverability Code.* Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the SMR code as follows:

Recoverability codes *Application/Explanation*

Z — Nonreparable item. When unserviceable, condemn and dispose of the item at the category of maintenance shown in the third position of SMR code.

O — Reparable item. When uneconomically reparable, condemn and dispose of the item at organizational or aviation unit category.

F — Reparable item. When uneconomically reparable, condemn and dispose of the item at the direct support or aviation intermediate category.

H — Reparable item. When uneconomically reparable, condemn and dispose of the item at the general support category.

D — Reparable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item not authorized below depot category.

L — Reparable item. Condemnation and disposal not authorized below specialized repair activity (SRA).

A — Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.

c. FSCM (Column (3)). The Federal Supply Code for Manufacturer (FSCM) is a 5-digit numeric code which is used to identify the manufacturer, distributor, or Government agency, etc , that supplies the item.

d. Part Number (Column (4)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When you use an NSN to requisition an item, the item you receive may have a different part number from the part ordered.

e. Description and Usable on Code (UOC) (Column (5)). This column includes the following information:

(1) The Federal item name and, when required, a minimum description to identify the item.

(2) The statement "END OF FIGURE " appears just below the last item description in Column (5) for a given figure in both section II and section III.

f. Qty (Column (6)). Indicates the quantity of the item used in the breakout shown on the illustration figure, which is prepared for a functional group, subfunctional group, or an assembly. A "V" appearing in this column in lieu of a quantity indicates that the quantity is variable and the quantity may vary from application to application.

F-4. EXPLANATION OF COLUMNS (SECTION IV)

a. National Stock Number (NSN) Index.

(1) *Stock number column.* This column lists the NSN by National item identification number (NIIN) sequence. The NIIN consists of the last nine digits of the NSN. When using this column to locate an item, ignore the first four digits of the NSN. When requisitioning items use the complete NSN (13 digits).

(2) *Fig. column.* This column lists the number of the figure where the item is identified/located. The figures are in numerical sequence in sections II and III.

(3) *Item column.* The item number identifies the item associated with the figure listed in the adjacent Fig. column. This item is also identified by the NSN listed on the same line.

b. Part Number Index. Part numbers in this index are listed by part number is ascending alphameric sequence.

(1) *FSCM column.* This column lists the Federal supply code for manufacturer (FSCM).

(2) *Part number column.* This column indicates the part number assigned to the item.

(3) *Stock number column.* This column lists the National stock number for the associated part number and manufacturer identified in the part number and FSCM columns to the left.

(4) *Fig. column.* This column lists the number of the figure where the item is identified/located in sections II and III.

(5) *Item column.* The item number is that number assigned to the item as it appears in the figure referenced in the adjacent figure number column

F-5. SPECIAL INFORMATION

a. Usable on Code. Not applicable.

b. Fabrication Instructions. Not applicable.

c. Assembly Instructions. Not applicable.

d. Kits. Not applicable.

e. Index Numbers. Not applicable.

f. Associated Publications. Not applicable.

g. Illustrations - Listing. Not applicable.

F-6. HOW TO LOCATE REPAIR PARTS

a. When National stock number or part number is not known.

(1) *First.* Using the table of contents, determine the assembly group or subassembly group to which the item belongs. This is necessary since figures are prepared for assembly groups and subassembly groups, and listings are divided into the same groups.

(2) *Second.* Find the figure covering the assembly group or subassembly group to which the item belongs.

(3) *Third.* Identify the item on the figure and note the item number

(4) *Fourth.* Refer to the Repair Parts List for the figure to find the part number for the item number noted on the figure.

(5) *Fifth.* Refer to the Part Number Index to find the NSN, if assigned.

b. When National stock number or part number is known.

(1) *First.* Using the Index of National stock numbers and part number, find the pertinent National stock number or part number. The NSN index is in National item identification number (NIIN) sequence (para 4*a*(1)). The part numbers in the part number index are listed in ascending alphameric sequence (para 4*b*). Both indexes cross-reference you to the illustration figure and item number of the item you are looking for.

(2) *Second.* After finding the figure and item number, verify that the item is the one you're looking for, then locate the item number in the repair parts list for the figure.

F-7. ABBREVIATIONS.

Not applicable.

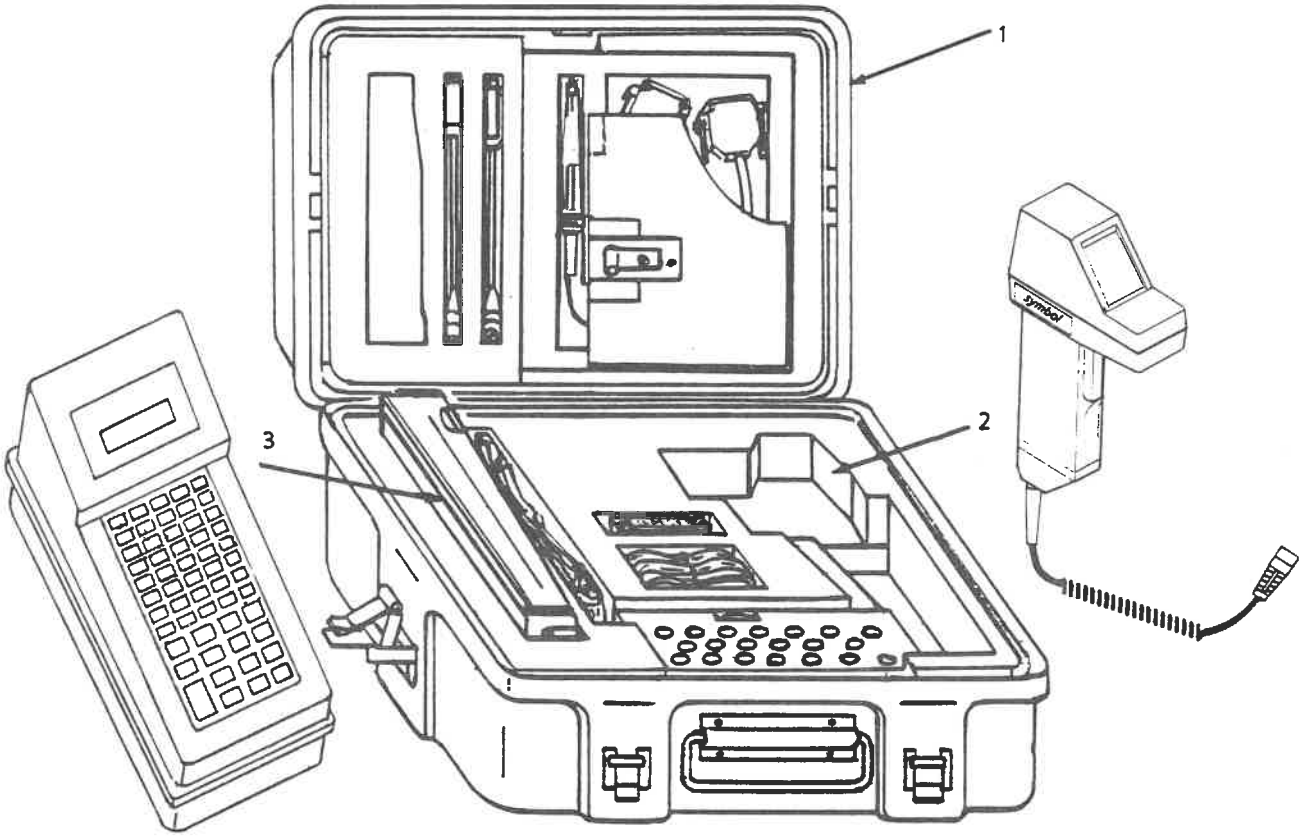


Figure 1. Bar Code Reader Group CY-8537/G (1 of 3)

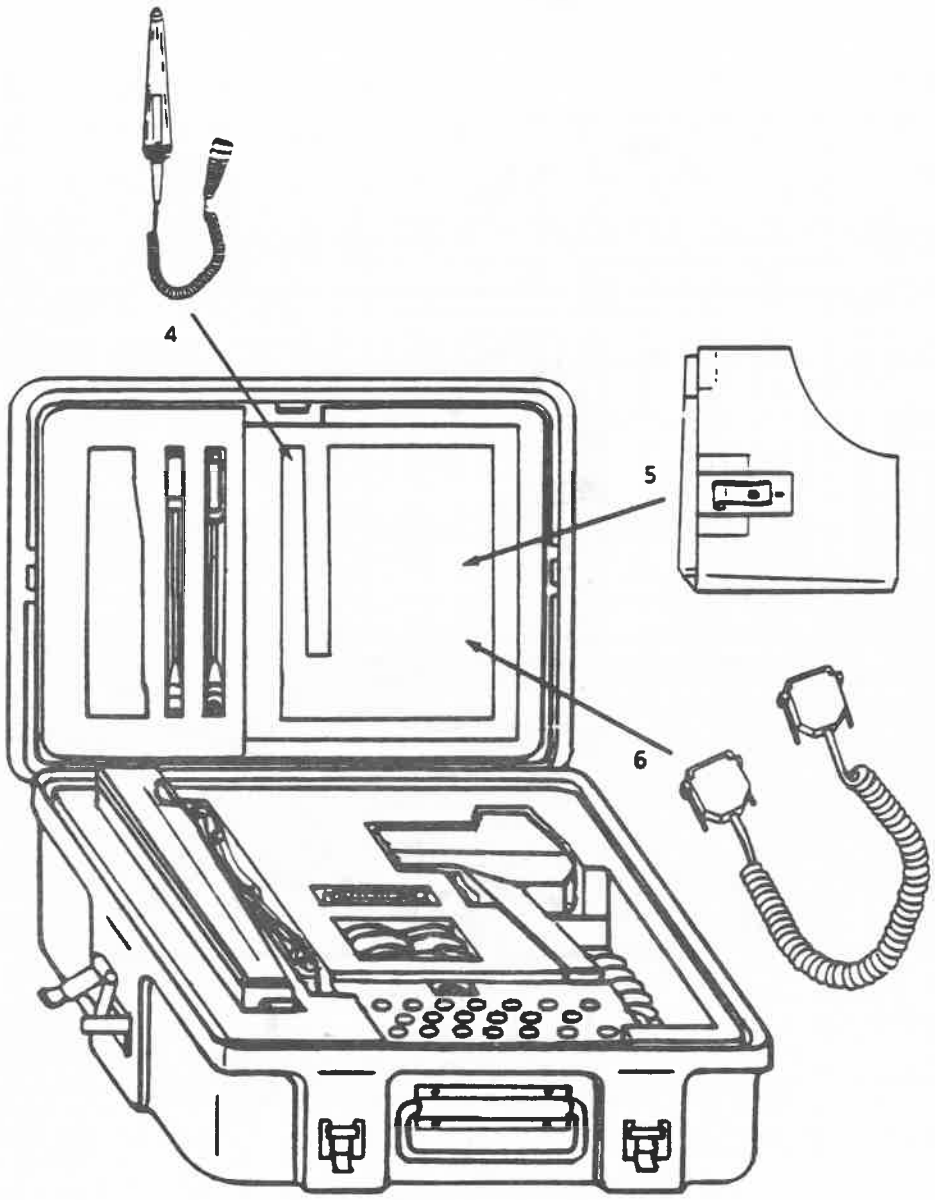


Figure 1. Bar Code Reader Group CY-8537/G (2 of 3)

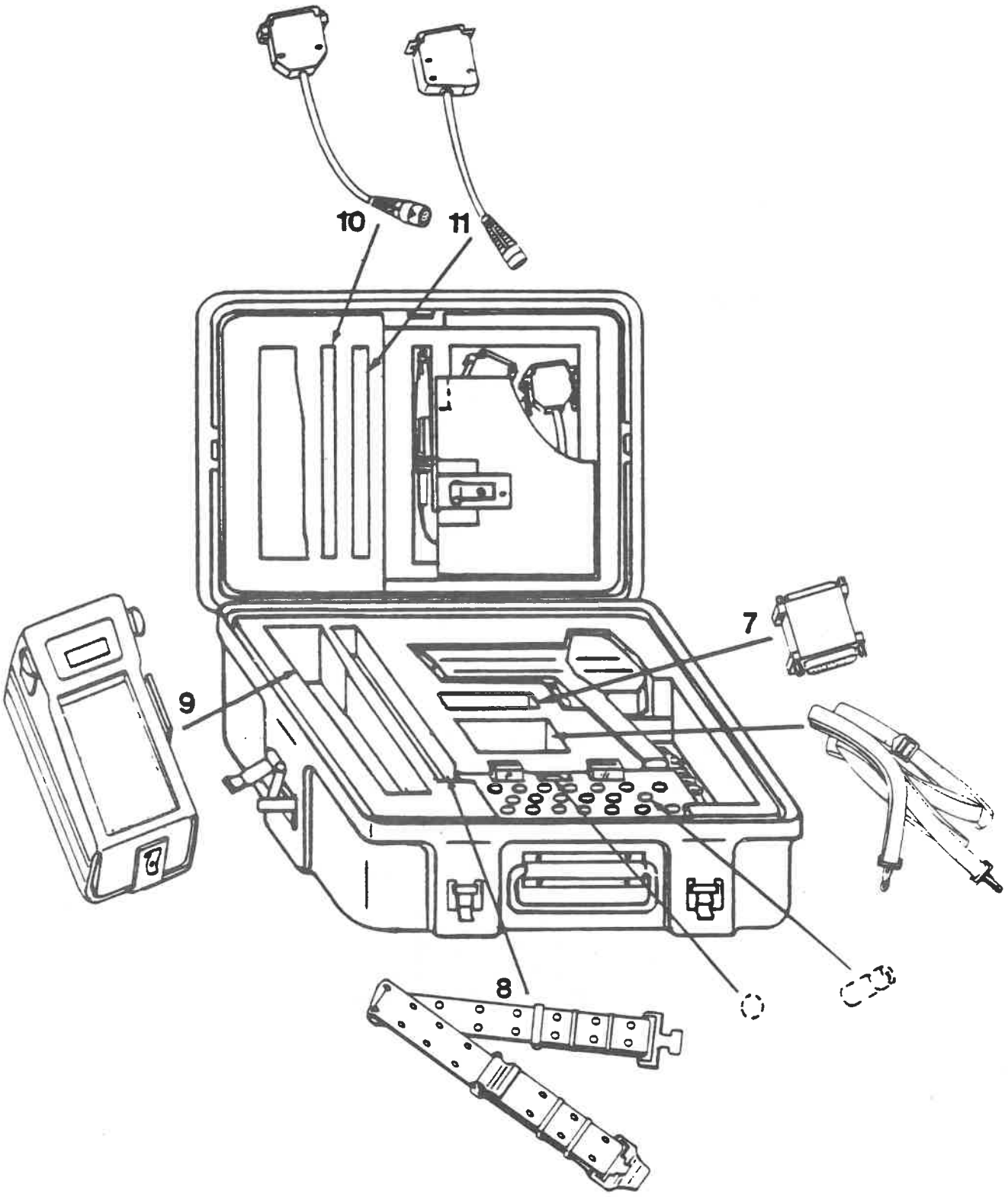


Figure 1. Bar Code Reader Group CY-8537/G (3 of 3)

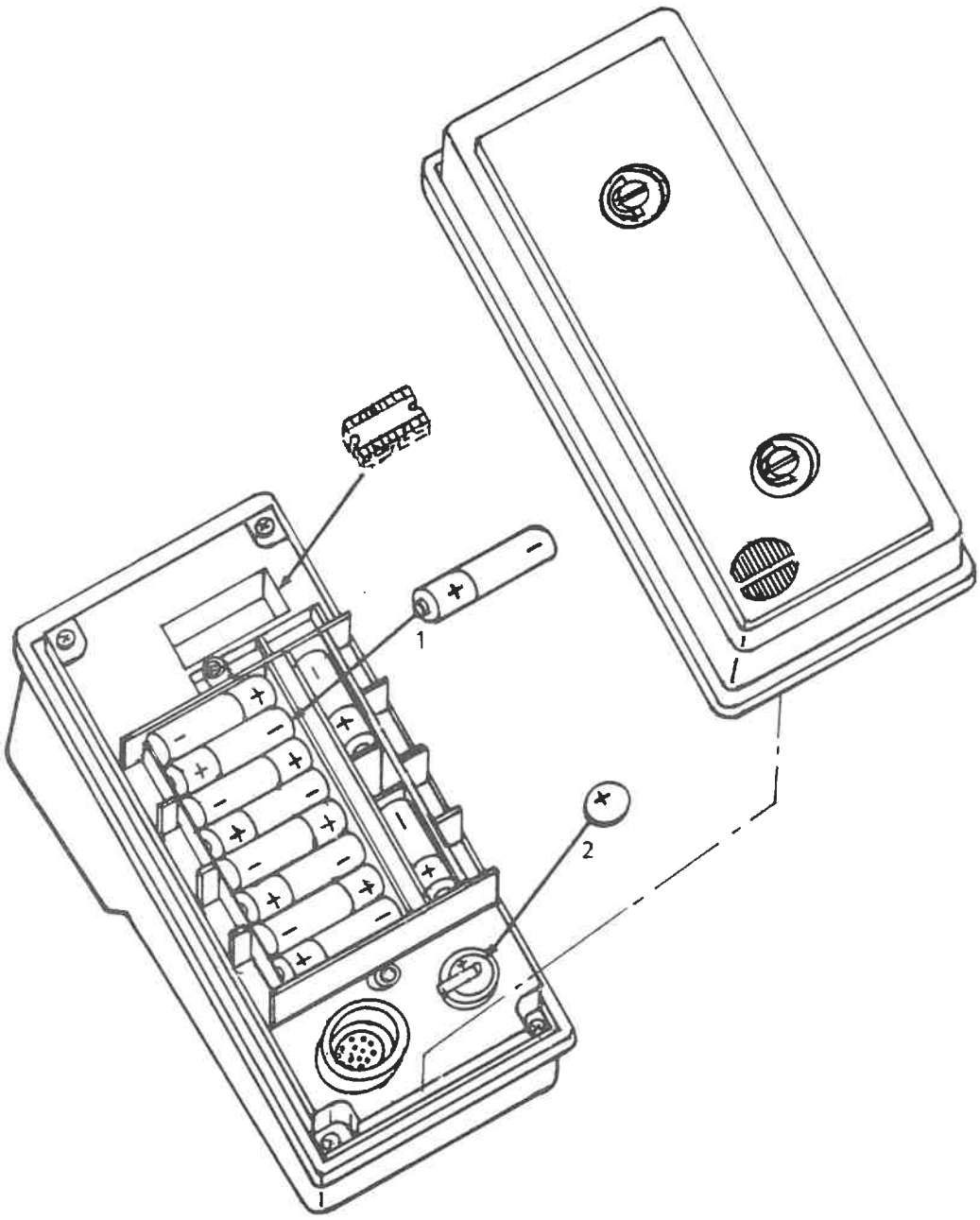


Figure 2. Bar Code Reader CY-1886/G

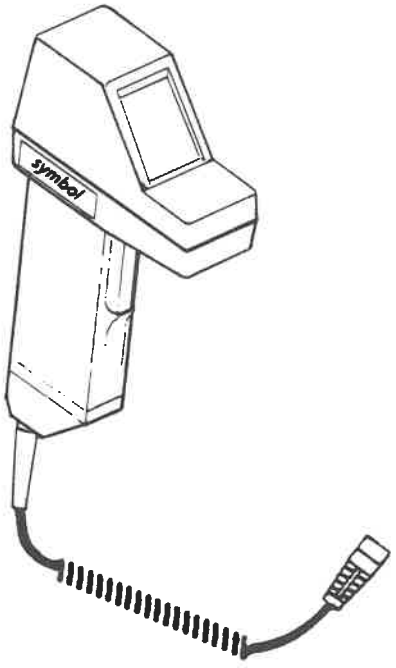


Figure 3. Laser Scanner

GLOSSARY

Auto BIT	The BCR Built-In Test run in automatic mode
BCR	Bar Code Reader
Bar Code	Computer-generated symbol for the description of an item
Bar Code Label	A label affixed to an item which encodes its description
Backlight	Illumination of the BCR display achieved by pressing BCR FUNC, then B
Baud	The number of bits per second that can be transmitted in a given computer system
BCR Holster	The removable sleeve protecting the BCR
Bidding	A BCR display indicating data transmission in progress
BIT	Built-In Test; a self-diagnostic test resident in the BCR's operating system
	The first display that appears when the BCR SPACE, SHIFT, and ON keys are pressed
CAM	Custom application module; the PROM that contains the application program
Component	An individual piece of LOGMARS(T) equipment
Configuration	An arrangement of parts or pieces of equipment
Connectors	Cables attaching one piece of equipment to another
Contact Scanner	A bar code scanner, the tip of which must be in contact with a bar code label to read the code
CTA	Common Table of Allowances
Diagnostic	A computer program capable of identifying an equipment fault or malfunction
DL	Digital Loopback
DTE	Data Terminal Equipment
Download	A communications procedure that takes information from storage in one device (usually the host computer) and transfers it to another device. In LOGMARS(T), downloading is a transfer of information from the host computer to the BCR.
Field wire	Wire used for communications by phone or modem between a base of operations and a field location or between one field location and another
FUNC Key	The function key on the BCR
Host	The computer being used in the transfer of information; the host computer

IDS	Intermediate Direct Support
IPL	Initial Program Load; performed after installing a CAM to start the application program
JTA	Joint Table of Allowances
Laser Scanner	A noncontact bar code scanner
LCD	Liquid crystal display; the BCR's display
LED	Light Emitting Diode; used as indicators on the laser scanner
LOGMARS(T)	Logistics Applications of Automated Marking and Reading Symbols - Tactical
Manual BIT	The BCR Built-In Test run in the manual mode
Menu	A list of the BCR options that are available to the operator
MLD	Maintenance Level Diagnostic
Modem	A unit that *mod*ulates and *demo*dulates digital information, enabling transmission of the information across communication lines, which may be commercial telephone lines or field
MTOE	Modification Table of Organization and Equipment
PMCS	Preventive Maintenance Checks and Services
PROM	Programmable Read Only Memory; the multiprong unit that contains an application program
RAM	Random Access Memory
RTS	Run Time System
SAL	Self-Test Analog Loopback
Scroll	Using up and down arrows to read through a menu on the display
STAMIS	Standard Army Management Information System
TDA	Table of Distribution Allowances
TELCO	Receptacle on the modem used to connect the modem to the wall jack using a telephone signal cable
TELSET	Receptacle on the rear panel of the modem for the cable supplied with the telephone set
Transit case	Container for transporting or storing equipment
Upload	A communications procedure that takes information from storage in one device (usually the BCR) and transfers it to another device (usually the host computer). In LOGMARS(T), uploading is a transfer of information from the BCR to the host computer.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)
Commander
Stateside Army Depot
ATTN: AMSTA-US
Stateside, N.J. 07703-5007

DATE SENT
10 July 1975

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 11-5840-340-12	23 Jan 74	Radar Set AN/PRC-76

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	FIGURE NO	TABLE NO
2-25	2-28		
3-10	3-3		3-1
5-6	5-8		
		F03	

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Recommend that the installation antenna alignment procedure be changed throughout to specify a 2° IFF antenna lag rather than 1°.

REASON: Experience has shown that with only a 1° lag, the antenna servo system is too sensitive to wind gusting in excess of 25 knots, and has a tendency to rapidly accelerate and decelerate as it hunts, causing strain to the drive train. Hunting is minimized by adjusting the lag to 2° without degradation of operation.

Item 5, Function column. Change "2 db" to "3db."

REASON: The adjustment procedure for the TRANS POWER FAULT indicator calls for a 3 db (500 watts) adjustment to light the TRANS POWER FAULT indicator.

Add new step f.1 to read, "Replace cover plate removed in step e.1, above."

REASON: To replace the cover plate.

Zone C 3. On J1-2, change "+24 VDC to "+5 VDC."

REASON: This is the output line of the 5 VDC power supply. +24 VDC is the input voltage.

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
SSG I. M. DeSpiritof 999-1776

SIGN HERE
I. M. DeSpiritof

DA FORM 1 JUL 79 2028-2

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TEAR ALONG PERFORATED LINE

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DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE

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PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.

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PREVIOUS EDITIONS ARE OBSOLETE

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPE OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

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